November 25, 2016

EPA-HQ-OW-2016-0438
Air and Radiation Docket
United States Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460-0001

Subject: Request for Public Comments To Be Sent to EPA on Peer Review Materials To Inform the Safe Drinking Water Act Decision Making on Perchlorate [81 FR 67350, September 30, 2016]

NASA thanks EPA for the opportunity to provide comments, issues, and requests during the public comment period for the proposed Perchlorate model. NASA reviewed the proposed model and identified procedural, as well as, general and specific technical issues summarized below. These comments are intended to target gaps and approaches, which if addressed, will improve the efficacy and applicability of the model used in the development of an MCL for Perchlorate. NASA supports sound science as a foundation for regulatory action and appreciates EPA's consideration of this and all other input during the public comment period.

NASA requests EPA address specific procedural issues that impacted on the ready identification of scientific and technical issues during this review process. Independent, rigorous peer review provides the best method to consider and address emerging scientific or technical disagreements. EPA's decision to separate the draft peer review charge questions from the public comment review of the model hampered the reviewer's ability to link issues with the model with the crucial direction provided to the peer review process. The peer review charge questions were subjected to a shorter comment period with EPA providing little clear direction on how specific critical issues identified in the actual review of the proposed model, in subsequent public comment, would be considered during peer review.

In addition, EPA stated that its contractor, Versar, would summarize the public comments that would be shared with the peer reviewers. Such an approach limits the peer reviewers' ability to see the depth and range of public comments for consideration This practice is contrary to the open and complimentary provision of all public comments for reviewers. Independent, rigorous peer review provides the best method to consider and address emerging scientific or technical disagreements. Versar would also summarize the peer reviewers' comments and draft the final peer review report. Generally, an independent peer review report is drafted by the participating members. EPA's approach with the lack of clear direction, support for open sharing of information and the peer reviewers' control over their deliberations presents a troubling approach that threatens to cripple the independent and informed nature of peer review for the proposed Perchlorate model. Also EPA has not indicated how the proposed peer review of the model would be considered. EPA is silent on whether the peer review serves as a majority report, delineating next steps or simply a collection of opinions (often referred to as a letter report) for EPA to consider. NASA again stresses the value of a rigorous, independent peer review to address outstanding scientific and technical issues in the development of sound policy and

regulatory actions. We request EPA provide clear direction and transparency for a robust and effective peer review of the proposed Perchlorate model.

NASA also submits comments on scientific and technical issues identified in the review of the proposed Perchlorate model. This review serves to raise major issues to EPA with the request for response or the incorporation of outstanding issues into the peer review process for appropriate resolution.

Primarily, NASA notes the significant contributions and technical expertise for PBPK modeling of Perchlorate provided to EPA by Food and Drug Administration (FDA) and Department of Defense (DoD) scientists and researchers. We strongly suggest EPA give focused consideration to the technical issues raised by these experts in the FDA and DoD public comments. In a unique partnering effort, EPA collaborated heavily with these experts in various phases of the development of the proposed model. In support of the previous interagency collaboration, NASA concurs with DoD and FDA on the scientific and technical issues identified during this public comment period. We request EPA address outstanding gaps, issues, or need for clarification or validation contained in the expert input found in FDA and DoD comments.

NASA identifies additional areas of concern. The first major issue is EPA's fundamental assumption of using hypothyroxinemia as the end point. NASA understands that the SAB took this very conservative approach to target a specific condition not directly associated with a health impact. However, EPA's use of this endpoint in the proposed model lacks any substantiation in the available literature, especially for critical criteria, such as the Mode of Action (MOA), links to a disease state, or key thyroid endpoints. Additional questions arise over the relationship between EPA's estimation of Perchlorate exposure and the likely relevant Perchlorate exposures. EPA is strongly encouraged to request peer review and suggested approaches to strengthen the proposed model, based on expert opinion and alternative literature-supported approaches, especially in the consideration of the roles of TSH, T3, fT4 hormones on the impacts on the thyroid in the presence of Perchlorate. The proposed model serves as the basis for far-reaching regulation and would greatly benefit from rigorous, scientific reflection of the peer-reviewed literature.

Second, NASA's review identified the need for formal calibration of the proposed model, crucial steps to ensure scientific integrity. EPA notes that the proposed model is calibrated (refer to Pages 27-29 and 60-68) but lacks documentation to support this fundamental step. EPA needs to provide this documentation to the peer review panel for consideration and should make this determination public in the peer review report.

Third, an independent evaluation and validation of the model is critical to truly understanding the strengths, weaknesses and opportunities to improve the model in application. Questions over the proposed model's ability to track with results in existing literature further fuel the need for an independent validation. Currently EPA does not expressly request, via the proposed charge questions, that the peer reviewers conduct model validation but should expand the peer review charge questions to explicitly ensure model validation with substantiating documentation.

Fourth, EPA incorporated numerous assumptions and alternative approaches throughout the proposed model. Among these assumptions are contentious issues, such as its consideration of sensitivity, lack of application to the developing fetus (EPA's decision to not target this potential sensitive subpopulation runs contrary to the SAB direction), assumptions on the nature and impacts of Perchlorate exposure in specific subpopulations, and rates of urinary clearance. EPA does not adequately support these assumptions, further complicating the review by providing contrary uses of existing data, such as from the Greer study (the basis of the National Academy of Sciences report, "Health Implications of Perchlorate Ingestion, 2005). NASA strongly suggests EPA use an open, rigorous peer review of the proposed model to consider and advise on the nature and application of these and other critical assumptions in the formulation of the model.

Again, NASA thanks EPA for the opportunity to review and comment on the proposed Perchlorate model. We strongly request that EPA consider and address the procedural and technical issues identified, especially the strengthening of the rigor and independence of the peer review process, the detailed technical issues raised by partnering DoD and FDA scientists, clarification of the outstanding assumptions and lack of model calibration and validation. We all support sound science in decision making and see these approaches as integral to the formulation of a defensible and applicable Perchlorate model.

Message

From: Christ, Lisa [Christ.Lisa@epa.gov]
Sent: 9/10/2019 4:26:53 PM
To: Burneson, Eric [Burneson.Eric@epa.gov]
CC: Hernandez-Quinones, Samuel [Hernandez.Samuel@epa.gov]; Khera, Rajiv [Khera.Rajiv@epa.gov]; Newcamp, Caitlin [Newcamp.Caitlin@epa.gov]; Lombardi, Thomas [lombardi.thomas@epa.gov]; Alattar, Zaineb [alattar.zaineb@epa.gov]; Huff, Lisa [Huff.Lisa@epa.gov]
Subject: draft summary of perchlorate public comments
Attachments: Perchlorate Comment Summary V1.1.docx

Eric,
Attached is a high level summary of the public comments received on the perchlorate proposal. OGC requested a summary to prepare the notice to the court requesting an extension of the consent decree final rule deadline. Let me know if you have questions or would like to discuss.
Lisa

Lisa Christ
Chief, Targeting and Analysis Branch
Office of Ground Water and Drinking Water
202-564-8354

Characterization of Air Emissions from Open Burning at the Radford Army Ammunition Plant

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Research Triangle Park, North Carolina

August 2, 2017

[PAGE * MERGEFORMAT]

Acknowledgment

Technical support was provided by Bill Mitchell, Dale Greenwell, and Dennis Tabor (EPA/ORD). Flight operations and range safety were handled by Ved Chirayath and David Satterfield (NASA Ames).

Abstract

The Department of the Army (PD Joint Services, Picatinny Arsenal) commissioned NASA-Ames to fly their unmanned aerial vehicle (UAV), a hexacopter, into the plumes from open burning of propellant and manufacturing discards at the Radford Army Ammunition Plant while carrying a gas and particle sensor system designed and operated by the EPA Office of Research and Development (ORD). Over a 2-week period the NASA/ORD team sampled 33 plumes, determining emissions factors for particulate matter, metals, chloride, perchlorate, volatile organic compounds, chlorinated dioxins/furans, and nitrogen-based organics. Results show agreement with published emission factors and good reproducibility (e.g., 11% relative standard deviation for $PM_{2.5}$). The UAS/sampler presents a significant advance in emission characterization capabilities for open area sources, safely and effectively making measurements heretofore deemed too hazardous for personnel or beyond the reach of land-based samplers.

Table of Contents

[TOC \o "1-3" \h \z \u]

15

List of Figures

[TOC \h \z \c "Figure"]

List of Tables

[TOC \h \z \c "Table"]

List of Appendices

[TOC \n \h \z \c "Appendix"]

List of Acronyms

CO	Carbon monoxide
CO_2	Carbon dioxide
Cr(VI)	Chromium VI
DOD	U.S. Department of Defense
DQI	Data Quality Indicator
EF	Emission Factor
EPA	U. S. Environmental Protection Agency
FOD	Foreign object debris
GC	Gas chromatography
GPS	Global positioning system
HCl	Hydrogen chloride
HMX	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine
HPLC	High-Performance Liquid Chromatography
IC	Ion chromatography
ICP	Inductively coupled plasma
LC	Liquid chromatography
LRGC	Low resolution gas chromatography
LRMS	Low resolution mass spectrometer
MCE	Mixed cellulose ester
MK-90	MK-90 rocket motors
NASA	National Aeronautics and Space Administration
NC	Nitrocellulose
NDIR	Non-dispersive infrared
NG	Nitroglycerine
NIST	National Institute for Standards and Technology
NO	Nitrogen oxide
NO_2	Nitrogen dioxide
NRE	New river energetics
OB/ OD	Open burning/Open detonation
OBG	Open burning ground

OD	Outer diameter
ORD	Office of Research and Development
$PM_{2.5}$	Particulate matter equal to and less than 2.5 µm
PUF	Polyurethane foam
QA	Quality Assurance
QAPP	Quality assurance project plan
RDX	Research Department Formula X, 1,3,5-Trinitroperhydro-1,3,5-triazine
RFAAP	Radford Army Ammunition Plant
RPD	Relative percent difference
SD	Secure digital
SDS	Safety Data Sheets
SIM	Selective ion monitoring
SRM	Standard reference material
SVOC	Semivolatile organic compounds
UAV	Unmanned aerial vehicle
UDRI	University of Dayton Research Institute
USB	Universal serial bus
VOCs	Volatile organic compounds
XRF	x-ray fluorescence spectrometry

1. Introduction

1.1 Brief

The Radford Army Ammunition Plant (RFAAP) conducts on-site disposal of a variety of hazardous energetic wastes via open burn pans located at the facility's open burning ground (OBG). Data on potential combustion emissions and their emission factors are available only from small laboratory and pilot scale simulations and their relevance to the RFAAP's scenario is uncertain. To resolve this issue, the RFAAP asked the U.S. Environmental Protection Agency's (EPA) Office of Research and Development (ORD) to perform direct sampling and quantification of the RFAAP's OBG emissions. ORD has considerable experience sampling emissions from open burning and open detonation (OB/OD) of military ordnance and static firing of rocket motors (for example, see Aurell et al. [ADDIN EN.CITE <EndNote><Cite><Author>Aurell</Author><Year>2015</Year><RecNum>4622</RecNum><DisplayText>[1]</DisplayText><record><rec-number>4622</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1422043961">4622</key></foreign-keys><ref-type name="Journal Article">17</ref-type><contributors><authors><author>Aurell, Johanna</author><author>Gullett, Brian K.</author><author>Tabor, Dennis</author><author>Williams, Ryan K.</author><author>Mitchell, William</author><author>Kemme, Michael R.</author></authors></contributors><titles><title>Aerostat-based sampling of emissions from open burning and open detonation of military ordnance</title><secondary-title>Journal of Hazardous Materials</secondary-title></titles><periodical><full-title>Journal of Hazardous Materials</full-title></periodical><pages>108-120</pages><volume>284</volume><number>0</number><keywords><keyword>Munitions</keyword><keyword>Emission factors</keyword><keyword>Open burning</keyword><keyword>Open detonation</keyword><keyword>Static firing</keyword></keywords><dates><year>2015</year><pub-dates><date>3/2/</date></pub-dates></dates><isbn>0304-3894</isbn><urls><related-urls><url>http://www.sciencedirect.com/science/article/pii/S0304389414008504</url></related-urls></urls><electronic-resource-num>http://dx.doi.org/10.1016/j.jhazmat.2014.10.029</electronic-resource-num></record></Cite></EndNote>]). Since 2010, ORD has worked with the Department of Defense's (DoD's) Joint Munitions Command (and their predecessor, the Defense Ammunition Center), the Army Corps of Engineers, and the Defence Research and Development Canada - Valcartier to sample OB/OD emissions at three sites in the US and Canada. ORD has developed a suite of technologies for sampling an array of OB/OD emission constituents from both aerial and ground-based sampling platforms. These sampling methods have been developed over the last five years and include novel methods employing small sensors and samplers, necessitated by the challenge of sampling within a plume located several hundred feet in the open air. To

transport ORD's emission sensors/samplers into the plumes, RFAAP entered into an Interagency Agreement with the National Aeronautics and Space Agency, Ames Research Center (NASA Ames) for them to pilot their hexacopter unmanned aerial vehicle (UAV).

1.2 Objective

The objective of this work was to characterize and quantify emissions from open burning of dry propellant burns (MK-90 rocket motors) and so-called "skid burns", which are a combination of process wastes from onsite production operations. This skid waste is generally a combination of energetic material, soil, gravel, and other foreign object debris (FOD). Skid burns are what the facility refers to as "assisted burns," where the materials are placed on wooden skids, and nested with dunnage and diesel fuel to promote burning. Quantification of the emissions includes determination of emission factors relating the amount of compound emitted to the amount present in the original material.

2 Materials and Methods

2.1 Test Site Location and Description

The sampling was conducted at the Radford Army Ammunition Plant (RFAAP) in the mountains of southwest Virginia, approximately five miles northeast of the city of Radford, Virginia. RFAAP lies along the New River in the relatively narrow northeastern corner of the valley. Approximate GPS coordinates are 37.1925 N, 80.5233 W. Figure 2-1 shows an overview of the RFAAP burn pan site.

*Figure [STYLEREF 1 \s]-[SEQ Figure * ARABIC \s 1]. Overhead View of RFAAP Burn Pan Site.*

2.2 Test Ordnance and Test Schedule

Two fuel sources were sampled: dry propellant burns (MK-90) and skid burns (two types). The test schedule is shown in Table 2-1. The composition of these fuel sources, particularly metals, is critical toward assessing the environmental fate of the constituents. Knowledge of the carbon content of the fuel is required for determination of emission factors, as explained in [REF _Ref479321549 \r \h], below.

*Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]. Test schedule, amount of total pan load and amount of waste burned per test day.*

Test Date	Fuel	Amount of burn pans	Amount of Total pan load lb (kg)	Amount of Total waste lb (kg)
09/27/2016	MK-90	5	3,000 (1,364)	3,000 (1,364)
09/28/2016	Skid waste: Type 1	3	3,254 (1,479)	1,620 (736)
09/29/2016	MK-90	5	3,000 (1,364)	3,000 (1,364)
09/30/2016	Skid waste: Type 2	2	1,589 (722)	500 (227)
10/03/2016	MK-90	5	3,000 (1,364)	3,000 (1,364)
10/04/2016	Skid waste: Type 1	3	3,254 (1,479)	1,620 (736)
10/05/2016	MK-90	5	3,000 (1,364)	3,000 (1,364)
10/06/2016	Skid waste: Type 2	2	1,589 (722)	500 (227)

2.2.1 MK-90

The MK-90 composition was constant for all burn tests. Each burn pan charge was comprised of 99% MK-90 and 1% NRE contaminated waste, by weight. The total carbon fraction is shown in Table 2-2

*Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]. Carbon fraction of "MK-90" burns.*

Ordnance	Total Carbon Fraction
Total fractions from MK-90 and NRE cont.	0.25

2.2.2 Skid Waste

Two different types of skid waste compositions were tested as shown in Figure 2-2. The main difference between the two skid waste types were the chlorine, lead, copper, and chrome fractions. Skid waste type 1 was designed to be a high chlorine burn and skid waste type 2 was a high metals burn. The majority of the carbon in the skid waste originated from the wood pallets

(Table 2-3). Both skid waste types contained the same number of wood pallets, however, skid waste type 2 contained 26% more carbon than skid waste type 1 due to a higher mass fraction of pallets (less waste mass in type 2).

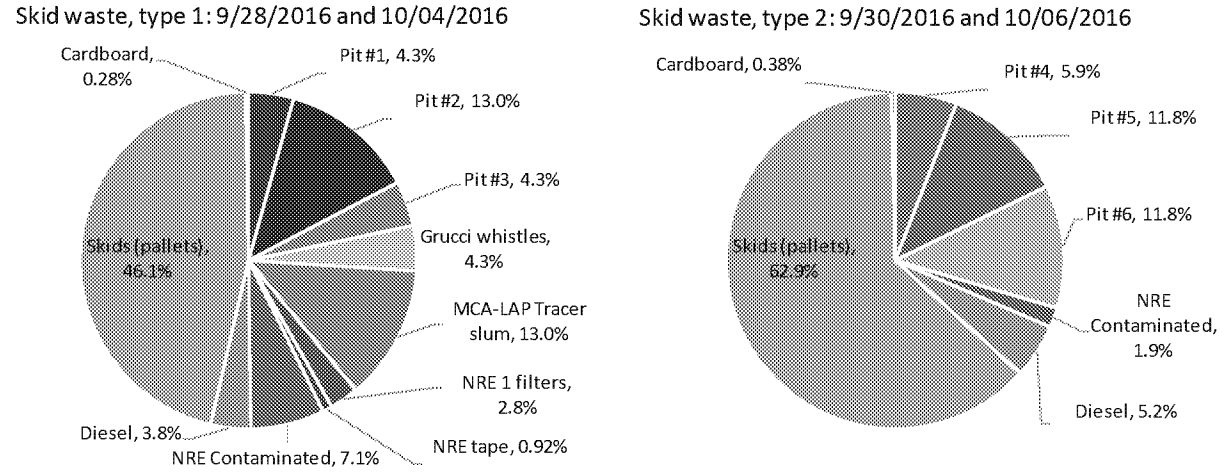

*Figure [STYLEREF 1 \s]-[SEQ Figure * ARABIC \s 1]. Composition of the two types of skid wastes tested, type 1 (left, total mass 3,254 lbs.) and type 2 (right, total mass 1,589 lbs.).*

*Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]. Skid waste carbon and metal fraction.*

Waste type/ Test Dates	Composition	Carbon Fraction of each component	Carbon fraction in burn pan
Skid waste Type 1 09/28/2016 and 10/04/2016	Pallets 46%	0.502[a]	0.23
	Cardboard 0.28%	0.46[b]	0.0013
	Diesel 3.8%	0.86[b]	0.033
	Pit #1 4.3%	0.017[d]	0.00074
	Pit #2 13%	0.046[d]	0.0059
	Pit #3 4.3%	0.41[d]	0.0018
	Grucci whistles 4.3%	0.16[d]	0
	MCA-LAP Tracer slum 13%	0.0003[d]	0.000043
	NRE 1 filters 2.8%	0.013[d]	0.00035
	NRE tape 0.92%	0	0.00016
	NRE Contaminated 7.1%	0.046[d]	0.0032
	Total Carbon fraction		**0.28**
Skid waste Type 2 09/30/2016	Pallets 63%	0.502[a]	0.32
	Cardboard 0.38%	0.46[b]	0.0017
	Diesel 5.2%	0.86[c]	0.045

Waste type/ Test Dates	Composition	Carbon Fraction of each component	Carbon fraction in burn pan
and	Pit #4 5.9%	0.052[d]	0.0031
10/06/2016	Pit #5 11.8%	0.038[d]	0.0045
	Pit #6 11.8%	0.056[d]	0.0066
	NRE Contaminated 1.9%	0.046[d]	0.00086
	Total Carbon Fraction		**0.38**

[a] [ADDIN EN.CITE <EndNote><Cite><Author>Ragland</Author><Year>1991</Year><RecNum>4828</RecNum><DisplayText>[2]</DisplayText><record><rec-number>4828</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1491401881">4828</key></foreign-keys><ref-type name="Journal Article">17</ref-type><contributors><authors><author>Ragland, K. W.</author><author>Aerts, D. J.</author><author>Baker, A. J.</author></authors></contributors><titles><title>Properties of wood for combustion analysis</title><secondary-title>Bioresource Technology</secondary-title></titles><periodical><full-title>Bioresource Technology</full-title></periodical><pages>161-168</pages><volume>37</volume><number>2</number><keywords><keyword>Wood</keyword><keyword>combustion</keyword><keyword>fuel properties</keyword><keyword>modeling</keyword></keywords><dates><year>1991</year><pub-dates><date>1991/01/01</date></pub-dates></dates><isbn>0960-8524</isbn><urls><related-urls><url>http://www.sciencedirect.com/science/article/pii/096085249190205X</url></related-urls></urls><electronic-resource-num>http://dx.doi.org/10.1016/0960-8524(91)90205-X</electronic-resource-num></record></Cite></EndNote>]

[b] [ADDIN EN.CITE <EndNote><Cite><Author>Aurell</Author><Year>2016</Year><RecNum>4827</RecNum><DisplayText>[3]</DisplayText><record><rec-number>4827</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1491401241">4827</key></foreign-keys><ref-type name="Report">27</ref-type><contributors><authors><author>Aurell, Johanna</author><author>Gullett, Brian</author></authors></contributors><titles><title>Characterization of Emissions from Open Burning of Meals Ready-to-Eat and their Paperboard Packaging</title></titles><number>EPA 600/R-16/220</number><dates><year>2016</year></dates><pub-location>U.S. EPA</pub-location><urls><related-urls><url>https://nepis.epa.gov/Exe/ZyPDF.cgi/P100PZ6F.PDF?Dockey=P100PZ6F.PDF</url></related-urls></urls><access-date>Accessed April 5, 2017</access-date></record></Cite></EndNote>]

[c] Calculated using molecular formula $C_{12}H_{23}$ and density 0.832 kg/L.

[d] Analytical measured data from BAE.

2.3 *Testing Procedures*

2.3.1 *Target Analytes and Collected Target Analytes*

The target analytes are listed in Table 2-4. The full list of target VOCs are listed in Chapter 2.4.5. CO_2 and CO were successfully measured continuously through all burns. The total number of target analyte samples collected for each type of waste are shown in Table 2-5.

*Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]. Target Analytes.*

Analyte	Instrument/Method	Frequency
CO_2	Non-dispersive infrared	Continuous
CO	Electrochemical cell	Continuous

Analyte	Instrument/Method	Frequency
$PM_{2.5}$[a]	Impactor, Teflon filter	Batch
Nitrocellulose	Glass fiber filter	Batch
Nitroaromatics	Glass fiber filter	Batch
PCDD/PCDF	Glass fiber filter and PUF[b]	Batch
Elements	Teflon filter from $PM_{2.5}$ batch filter	Batch
Cr(VI)	Bicarbonated-impregnated MCE[c] filter	Batch
HCl	Na_2CO_3 coated quartz filter	Batch
Perchlorate/chlorate	Quartz filter	Batch
VOCs	Carbotrap 300	Batch

[a]Fine particles in the ambient air with particles less than or equal to 2.5 μm in diameter.
[b] PUF – polyurethane foam plug.
[c] MCE – mixed cellulose ester.

*Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]. Collected Target Analytes from MK-90 and Skid Waste.*

Analyte	MK-90	Skid waste	Total
$PM_{2.5}$	5	2	7
Nitrocellulose	2	0	2
Nitroaromatics	4	0	4
PCDD/PCDF	0	4	4
Elements	5	2	7
Cr(VI)	5	3	8
HCl	0	6	6
Perchlorate/chlorate	0	6	6
VOCs	0	4	4

2.3.2 Unmanned Aerial Vehicle Based Sampling Method

Figure 2-3 shows the sampling instrumentation attached to the bottom of the UAV. This combined system was used for collecting air emissions from propellant plumes.

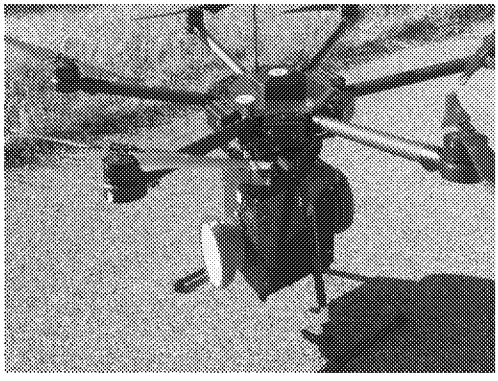

*Figure [STYLEREF 1 \s]-[SEQ Figure * ARABIC \s 1]. UAV-Based Sampling Method*

2.3.2.1 Unmanned Aerial Vehicle – UAV

Aerial sampling was conducted by a UAV operated by NASA Ames. NASA used a DJI Matrice M600 UAV (Figure 2-4). It is a 6-rotor hexacopter with a 9.1 kg weight and a 15.1 kg maximum acceptable gross take-off weight. Its maximum loaded flight time was approximately 13.5 min whereupon the remaining battery charge was 40%. The UAV can be controlled automatically or by pilot-in-command modes and provides the operator a GPS display screen of location in real time with a 2.4 GHz telemetry system. The M600 has an inertial measurement unit and GPS with a return to base function at a preset charge threshold.

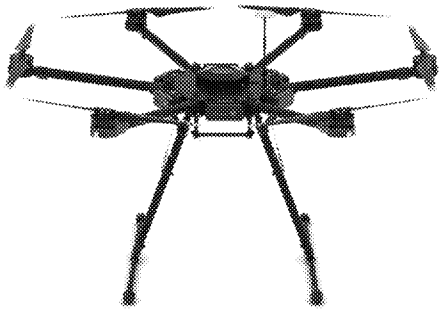

*Figure [STYLEREF 1 \s]-[SEQ Figure * ARABIC \s 1]. NASA's UAV.*

2.3.2.2 Kolibri – Sampling System

EPA/ORD's sampling system called the "Kolibri" has been developed specifically for sample collection of plumes from open combustion sources. There are two configurations of the Kolibri primarily relating to the different sizes of the pumps needed for specific analytes. There are duplicate models of both Kolibris configurations for redundancy, referred to as "Oden" and "Balder" for the smaller unit and "Tor" and "Loke" for the larger unit (Figure 2-5). Because of payload limitations on the UAV, it was not possible to sample all of the target analytes with all

of the pumps on a single platform. In addition, one pump has to be used for multiple analytes ($PM_{2.5}$ or Total PM, Nitrocellulose or Nitroaromatics) and these can only be sampled separately. Hence, the full suite of analytes could only be collected using both Kolibris with sampler variations on each one ([REF _Ref471290627 \h]). In addition, energetics and VOCs required composite samples comprised of emission sampling from plumes of multiple burns. Because each of these samples has to be collected separately with composite samples, the number of repeat samples was limited. The Kolibri is capable of plotting real time CO_2 and CO data, displaying sampling time and VOC sampling volume, while performing real time calculations to estimate the total amount of gaseous carbon sampled for the energetic sample.

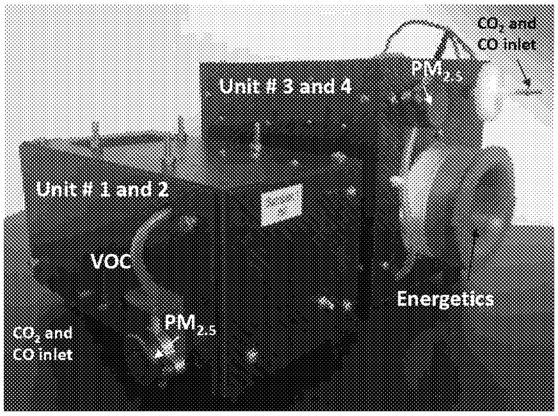

*Figure [STYLEREF 1 \s]-[SEQ Figure * ARABIC \s 1]. Kolibri Instrumentation, Oden and Balder in foreground and Tor and Loke in background.*

*Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]. Sampling instrumentation used during each test day.*

Test Date	Ordnance	Kolibri Unit	Analytes Collected
09/27/2016	MK-90	Unit 4: Loke	Nitroaromatics/$PM_{2.5}$/Metals
09/29/2016	MK-90	Unit 4: Loke	Nitrocellulose/Cr(VI)
10/03/2016	MK-90	Unit 4: Loke	Nitroaromatics/Cr(VI)
10/05/2016	MK-90	Unit 4: Loke	Nitrocellulose/$PM_{2.5}$ /Metals
09/28/2016 10/04/2016	Skid waste	Unit 4: Loke	PCDD/PCDF/ HCl/Perchlorate/Chlorate
09/30/2016	Skid waste	Unit 2: Balder	VOCs/Cr(VI)
10/06/2016	Skid waste	Unit 1: Oden	VOCs/Cr(VI)
10/06/2016	Skid waste	Unit 1: Oden	VOCs/$PM_{2.5}$/Metals

2.3.3 *Ambient Air Background Sampling*

Ambient air background samples were collected upwind of the burn pan site after any MK-90 and skid waste burns were conducted. The ambient air background samples were collected with the same instruments/methods as the emission samples as shown in Table 2-7.

*Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]. Sampling instrumentations used during ambient air background collection.*

Test Date	Kolibri Unit	Sampling volume	Analytes Collected
10/04/16	Unit 4: Loke	0.31 m^3	HCl/Perchlorate
10/04/16	Unit 4: Loke	33 m^3	PCDD/PCDF
10/05/16	Unit 4: Loke	0.63 m^3	$PM_{2.5}$/Metals
10/05/16	Unit 4: Loke	36 m^3	Nitrocellulose
10/06/16	Unit 4: Loke	35 m^3	Nitroaromatics
10/06/16	Unit 1: Oden	0.48 m^3	Cr(VI)
10/06/16	Unit 1: Oden	0.0058 m^3	VOC

2.4 *Emission Sampling and Analytical Methods*

2.4.1 *CO_2*

The system CO_2 sensor (DX62210/DX6220 OEM Model, RMT Ltd, Moscow, Russia) measured CO_2 concentration by means of non-dispersive infrared absorption (NDIR). The DX62210/DX6220 CO_2 concentration was recorded on a standard secure digital (SD) card at a rate of one sample per second (1 Hz). The DX62210/DX6220 was calibrated for CO_2 and checked for drift on a daily basis in accordance with EPA Method 3A [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>1989</Year><RecNum>3648</RecNum><DisplayText>[4]</DisplayText><record><rec-number>3648</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1310412394">3648</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Determination of oxygen and carbon dioxide concentrations in emissions from stationary sources (instrumental analyzer procedure)</title></titles><keywords><keyword>EPA method</keyword></keywords><dates><year>1989</year></dates><label>U.S. EPA Method 3A</label><urls><related-urls><url>http://www.epa.gov/ttn/emc/promgate/m-03a.pdf</url></related-urls></urls><remote-database-name>http://www.epa.gov/ttnemc01/methods/method3a.html, U.S. Environmental Protection

Agency</remote-database-name><access-date>Accessed May 5, 2014</access-date></record></Cite></EndNote>]. The gas cylinders used for calibration were certified by the suppliers and traceable to National Institute of Standards and Technology (NIST) standards. A precision dilution calibrator Serinus Cal 2000 (American ECOTECH L.C., Warren, RI, USA) was used to dilute the high-level span gases for acquiring the mid-point concentrations for the DX62210/DX6220 calibration curves. The daily CO_2 system drift for Unit 4 (Loke) varied from -4.6% to -0.4% of the full span and +1.0% for Unit 2 (Balder), which is within the 5% acceptance limit of the sensor. Unit 1 (Oden) did not have a long enough warm up period before calibration therefore the drift of 7.9% was slightly outside acceptance limit, for this reason, the post-calibration curve was used for calculations as opposed to the pre-calibration curve.

2.4.2 CO

The CO sensor (e2V EC4-500-CO) was an electrochemical gas sensor (SGX Sensortech Ltd, High Wycombe, Buckinghamshire United Kingdom) which measured CO concentration by means of an electrochemical cell through CO oxidation and changing impedance. The sensor was calibrated for CO on a daily basis in accordance with U.S. EPA Method 3A[ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>1989</Year><RecNum>3648</RecNum><DisplayText>[4]</DisplayText><record><rec-number>3648</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1310412394">3648</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Determination of oxygen and carbon dioxide concentrations in emissions from stationary sources (instrumental analyzer procedure)</title></titles><keywords><keyword>EPA method</keyword></keywords><dates><year>1989</year></dates><label>U.S. EPA Method 3A</label><urls><related-urls><url>http://www.epa.gov/ttn/emc/promgate/m-03a.pdf</url></related-urls></urls><remote-database-name>http://www.epa.gov/ttnemc01/methods/method3a.html, U.S. Environmental Protection Agency</remote-database-name><access-date>Accessed May 5, 2014</access-date></record></Cite></EndNote>]. The e2V CO concentration was recorded on a SD card at a rate of one sample per second (1 Hz). All gas cylinders used for calibration are certified by the suppliers and traceable to NIST standards. A precision dilution calibrator Serinus Cal 2000 (American ECOTECH L.C., Warren, RI, USA) was used to dilute the high-level span gases for acquiring the mid-point concentrations for the e2V EC4-500-CO calibration curves. The daily CO system drift for Unit 4 (Loke) varied from -8.4% to 2.8% and -1.2% for Unit 2 (Balder) and -4.5% for Unit 1 (Oden), which is within the 10% acceptance limit of the sensor.

2.4.3 PM and Elements

$PM_{2.5}$ was sampled with SKC impactors (761-203B) using 37 mm tared Teflon filter (obtained from Chester LabNet) with a pore size of 2.0 μm via a constant micro air pump (C120CNSN, Sensidyne, LP, St. Petersburg, FL, USA) of 10 L/min. Total PM was sampled using cassette with a 37 mm tared Teflon filter (Chester LabNet) with a constant air pump (C120CNSN, Sensidyne, LP, St. Petersburg, FL, USA). PM were measured gravimetrically following the procedures described in 40 CFR Part 50 [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>1987</Year><RecNum>3646</RecNum><DisplayText>[5]</DisplayText><record><rec-number>3646</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1310412394">3646</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Reference method for the determination of particulate matter as PM2.5 in the Atmosphere</title></titles><volume>52 FR 24664</volume><keywords><keyword>Method</keyword></keywords><dates><year>1987</year></dates><label>40 CFR Part 50, Appendix L</label><urls><related-urls><url>https://www.gpo.gov/fdsys/pkg/CFR-2014-title40-vol2/pdf/CFR-2014-title40-vol2-part50-appL.pdf</url></related-urls></urls><access-date>Accessed November 22, 2016</access-date></record></Cite></EndNote>]. The constant flow pump was calibrated daily with a Gilibrator Air Flow Calibration System (Sensidyne LP, St. Petersburg, FL, USA). The plume samples $PM_{2.5}$ concentrations were more than 100 times higher than the collected ambient air background sample.

Elements were determined by x-ray fluorescence spectrometry (XRF) analysis of the Teflon $PM_{2.5}$ and Total PM filters using EPA Compendium Method I0-3.3 [ADDIN EN.CITE <EndNote><Cite><Year>1999</Year><RecNum>3641</RecNum><DisplayText>[6]</DisplayText><record><rec-number>3641</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1310412394">3641</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Determination of metals in ambient particulate matter using X-Ray Fluorescence (XRF) Spectroscopy</title></titles><keywords><keyword>EPA method</keyword></keywords><dates><year>1999</year></dates><label>U.S. EPA Compendium Method IO-3.3</label><urls><related-urls><url>http://www.epa.gov/ttnamti1/files/ambient/inorganic/mthd-3-3.pdf</url></related-urls></urls><access-date>Accessed May 5, 2014</access-date></record></Cite></EndNote>]. The elements analyzed using XRF are stated in Table 2-8. Chester LabNet evaluated precision with a multi-element quality control standard (QS285) and accuracy using NIST standard reference materials (SRMs): SRM 1832, SRM 1833 and SRM 2783. The SRMs used for quality assurance/quality control (QA/QC) had a recovery of 91.9-108.6%, which is within the 80-120% acceptance criteria of the method. The plume samples' element concentrations were at least 4 times higher than the ambient air background concentration.

*Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]. Elements determined using XRF.*

Elements			
Aluminum (Al)	Copper (Cu)	Molybdenum (Mo)	Strontium (Sr)
Antimony (Sb)*	Gallium (Ga)	Nickel (Ni)*	Sulfur (S)
Arsenic (As)*	Germanium (Ge)	Palladium (Pd)	Tin (Sn)
Barium (Ba)	Indium (In)	Phosphorus (P)	Titanium (Ti)
Bromine (Br)	Iron (Fe)	Potassium (K)	Vanadium (V)
Cadmium (Cd)*	Lanthanum (La)	Rubidium (Rb)	Yttrium (Y)
Calcium (Ca)	Lead (Pb)*	Selenium (Se)*	Zink (Zn)
Chlorine (Cl)	Magnesium (Mg)	Silicon (Si)	Zirconium (Zr)
Chromium (Cr)*	Manganese (Mn)*	Silver (Ag)	
Cobalt (Co)*	Mercury (Hg)*	Sodium (Na)	

* On U.S. EPA's list of hazardous air pollutants [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2008</Year><RecNum>4440</RecNum><DisplayText>[7]</DisplayText><record><rec-number>4440</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1335539868">4440</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Clean Air Act: Title 42 - The public health and welfare</title></titles><pages>5713</pages><dates><year>2008</year></dates><pub-location>U.S. Government Printing Office</pub-location><label>U.S. EPA Hazardous Air Pollution List</label><urls><related-urls><url>http://www.gpo.gov/fdsys/pkg/USCODE-2008-title42/pdf/USCODE-2008-title42-chap85.pdf</url></related-urls></urls><remote-database-name>http://www.gpo.gov/fdsys/pkg/USCODE-2008-title42/pdf/USCODE-2008-title42-chap85.pdf</remote-database-name><access-date>Accessed May 5 2014</access-date></record></Cite></EndNote>].

2.4.4 Chromium(VI)

Chromium(VI) (Cr(VI)) was sampled on a bicarbonate-impregnated "acid hardened" cellulose filter via a constant micro air pump (C120CNSN, Sensidyne, LP, St. Petersburg, FL, USA) of 10 L/min. Cr(VI) was determined using a proprietary method (ChesterLabNet, Tigard, OR) based on an EPA standard procedure [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2006</Year><RecNum>4825</RecNum><DisplayText>[8]</DisplayText><record><rec-number>4825</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1491324698">4825</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Standard Operating Procedure for the Determination of Hexavalent Chromium In Ambient Air Analyzed By Ion Chromatography (IC)</title></titles><dates><year>2006</year></dates><label>U.S. EPA SOP</label><urls><related-urls><url>https://www3.epa.gov/ttnamti1/files/ambient/airtox/hexchromsop.pdf</url></related-

urls></urls><access-date>Accessed April 4, 2017</access-date></record></Cite></EndNote>]. The control sample had recoveries of 97.6 to 101.0% which is within the acceptance limits for the method 75-125%. No detectable levels of Cr(VI) were found in the ambient air background collected sample.

2.4.5 VOCs

VOCs was sampled using Carbotrap 300 stainless steel TD Tube (Supelco Inc., Bellefonte, PA, USA) via a constant micro air pump with an air flow rate of 0.185 L/min (3A120CNSN, Sensidyne, LP, St. Petersburg, FL, USA) in accordance with U.S. EPA Method TO-17 [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>1997</Year><RecNum>4518</RecNum><DisplayText>[9]</DisplayText><record><rec-number>4518</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1374764018">4518</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Determination of Volatile Organic Compounds in Ambient Air Using Active Sampling Onto Sorbent Tubes</title></titles><dates><year>1997</year></dates><label>U.S. EPA Method TO-17</label><urls><related-urls><url>http://www.epa.gov/ttnamti1/files/ambient/airtox/to-17r.pdf</url></related-urls></urls><access-date>Accessed July 25, 2013</access-date></record></Cite></EndNote>]. The Carbotrap 300 tubes were analyzed by ALS Simi Valley for VOCs by thermal desorption GC/MS according to U.S. EPA Method TO-17 [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>1997</Year><RecNum>4518</RecNum><DisplayText>[9]</DisplayText><record><rec-number>4518</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1374764018">4518</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Determination of Volatile Organic Compounds in Ambient Air Using Active Sampling Onto Sorbent Tubes</title></titles><dates><year>1997</year></dates><label>U.S. EPA Method TO-17</label><urls><related-urls><url>http://www.epa.gov/ttnamti1/files/ambient/airtox/to-17r.pdf</url></related-urls></urls><access-date>Accessed July 25, 2013</access-date></record></Cite></EndNote>]. The target VOCs analyzed from Carbopack 300 are stated in Table 2-9. The surrogate spikes used for the QA/QC had recoveries of 85-107% for all samples, which is within the accuracy of the method 70-140%. Eight (Trichlorofluoromethane, methylene chloride, carbon disulfide, trichloroethene, 1,1,2-trichloroethane, toluene, 1,2-dibromoethane, bromoform) of sixty-one VOCs had recoveries slightly outside the acceptance limits for the laboratory control sample. The other 53 VOCs had recoveries of 99-118%, which is within the acceptance limit of the method 52-135%. The VOC method blank showed all non-detectable levels of VOCs except for carbon disulfide. The VOC trip blank showed detectable levels of ethanol, acetonitrile, and acetone. The VOC plume sample levels were 2-14, 22-53, and

4-35 times higher for ethanol, acetonitrile, and acetone, respectively, than the trip blank and ambient background levels. The VOC plume samples were corrected for the trip blank concentrations as well as corrected for ambient air background concentrations. The constant flow pump was calibrated daily with a Gilibrator Air Flow Calibration System (Sensidyne LP, St. Peterburg, FL, USA).

*Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]. VOCs analyzed from Carbotrap 300*

VOCs		
1,1,1-Trichloroethane*	2-Hexanone	Ethanol
1,1,2,2-Tetrachloroethane*	2-Propanol (Isopropyl Alcohol)	Ethylbenzene*
1,1,2-Trichloroethane*	4-Methyl-2-pentanone	Hexachlorobutadiene*
1,1-Dichloroethane	Acetone	m,p-Xylenes*
1,1-Dichloroethene	Acetonitrile*	Methyl tert-Butyl Ether
1,2,4-Trichlorobenzene*	Benzene*	Methylene Chloride*
1,2,4-Trimethylbenzene	Bromodichloromethane	Naphthalene*
1,2-Dibromo-3-chloropropane	Bromoform*	n-Heptane
1,2-Dibromoethane	Carbon Disulfide*	n-Hexane
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	Carbon Tetrachloride*	n-Octane
1,2-Dichlorobenzene	Chlorobenzene*	o-Xylene*
1,2-Dichloroethane	Chloroethane	Styrene*
1,2-Dichloropropane	Chloroform*	Tetrachloroethene
1,3,5-Trimethylbenzene	Chloromethane*	Tetrahydrofuran (THF)
1,3-Butadiene*	cis-1,2-Dichloroethene	Toluene*
1,3-Dichlorobenzene	cis-1,3-Dichloropropene*	trans-1,2-Dichloroethene
1,4-Dichlorobenzene*	Cumene*	trans-1,3-Dichloropropene*
1,4-Dioxane	Cyclohexane	Trichloroethene
2,2,4-Trimethylpentane* (Isooctane)	Dibromochloromethane	Trichlorofluoromethane
2-Butanone (MEK)*	Dichlorodifluoromethane (CFC 12)	Trichlorotrifluoroethane
		Vinyl Chloride*

* On U.S. EPA's list of hazardous air pollutants [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2008</Year><RecNum>4440</RecNum><DisplayText>[7]</DisplayText><record><rec-number>4440</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1335539868">4440</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Clean Air Act: Title 42 - The public health and welfare</title></titles><pages>5713</pages><dates><year>2008</year></dates><pub-location>U.S. Government Printing Office</pub-location><label>U.S. EPA Hazardous Air Pollution List</label><urls><related-urls><url>http://www.gpo.gov/fdsys/pkg/USCODE-2008-title42/pdf/USCODE-2008-title42-chap85.pdf</url></related-urls></urls><remote-database-name>http://www.gpo.gov/fdsys/pkg/USCODE-2008-title42/pdf/USCODE-2008-title42-chap85.pdf</remote-database-name><access-date>Accessed May 5 2014</access-date></record></Cite></EndNote>].

2.4.6 Energetics

Nitroaromatics/Nitrocellulose were sampled using two 15 cm glass fiber filters (Fisher Scientific) with a nominal rate of 500 L/min. Energetics were sampled using a low voltage MINIjammer brushless blower (AMTEK, USA). The flow rate was measured by a 0-622 Pa Model 265 pressure differential transducer (Setra, USA) across a Herschel Standard Venturi tube (EPA in-house made). The Venturi tube is specially designed to meet the desired sampling rate for the target compound. The voltage equivalent to this pressure differential is recorded on the onboard Teensy USB microcontroller board, which was calibrated with a Roots meter (Model 5M, Dresser Measurement, USA) in the U.S. EPA metrology laboratory before sampling effort.

The energetics samples were analyzed by an outside laboratory using analytical methods U.S. EPA Method 8330b [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2006</Year><RecNum>4779</RecNum><DisplayText>[10]</DisplayText><record><rec-number>4779</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1468871546">4779</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Nitroaromatics, nitramines, and nitrate esters by high performance liquid chromatograph (HPLC)</title></titles><dates><year>2006</year></dates><label>U.S. EPA Method 8330B</label><urls><related-urls><url>https://www.epa.gov/sites/production/files/2015-07/documents/epa-8330b.pdf</url></related-urls></urls><access-date>Accessed July 18, 2016</access-date></record></Cite></EndNote>] for nitroaromatics and the nitrocellulose by U.S EPA Method 353.2 [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>1993</Year><RecNum>4780</RecNum><DisplayText>[11]</DisplayText><record><rec-number>4780</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1468871793">4780</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Determination of Nitrate-Nitrite Nitrogen by automated colorimetry</title></titles><dates><year>1993</year></dates><label>U.S. EPA Method 353.2</label><urls><related-urls><url>https://www.epa.gov/sites/production/files/2015-08/documents/method_353-2_1993.pdf</url></related-urls></urls><access-date>Acessed July 18, 2016</access-date></record></Cite></EndNote>] which is a nitrate-nitrite colorimetric method. The surrogate spikes used for the nitroaromatics QA/QC had recoveries of 99.9-104% for all samples, which is within the accuracy of the method 70-130%. The laboratory control spike recoveries for nitroaromatics were between 99.5% and 100%, which is within the accuracy of the method 70-150%. The laboratory control spike recovery for nitrocellulose was 108%, which is within the accuracy of the method 40-120%. Nitroaromatics and nitrocellulose were not detected in the ambient air background sample.

2.4.7 HCl, Perchlorate, and Chlorate

HCl was sample using an alkali-impregnated filter following a solid perchlorate and chloride filter (ISO Method 21438-2) [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2009</Year><RecNum>3634</RecNum><DisplayText>[12]</DisplayText><record><rec-number>3634</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1310412394">3634</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Workplace atmospheres — Determination of inorganic acids by ion chromatography — Part 2: Volatile acids, except hydrofluoric acid (hydrochloric acid, hydrobromic acid and nitric acid)</title></titles><keywords><keyword>HCl</keyword></keywords><dates><year>2009</year></dates><label>International standard ISO 21438-2:2009</label><urls></urls></record></Cite></EndNote>]. The sampling was conducted at a flow rate of 2 L/min using a constant micro air pump (C120CNSN, Sensidyne, LP, St. Petersburg, FL, USA). The constant flow pump was calibrated daily with a Gilibrator Air Flow Calibration System (Sensidyne LP, St. Petersburg, FL, USA). Perchlorate salts were captured as a solid on the filter, which assumes no perchloric acid formation [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1" ExcludeYear="1"><RecNum>4830</RecNum><DisplayText>[13]</DisplayText><record><rec-number>4830</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1494003675">4830</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Perchlorate: Potential for human exposure</title></titles><number>Chapter 6: tp162-c6</number><dates></dates><label>Agency for Toxic Substances and Disease Registry</label><urls><related-urls><url>https://www.atsdr.cdc.gov/ToxProfiles/tp162-c6.pdf</url></related-urls></urls><access-date>Accessed May 5, 2017</access-date></record></Cite></EndNote>]. Samples were analyzed at ALS, NY. The alkali-impregnated filter was analyzed for HCl by ion chromatography methods specified in U.S. EPA Method 26 [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1" ExcludeYear="1"><RecNum>4778</RecNum><DisplayText>[14]</DisplayText><record><rec-number>4778</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1468603659">4778</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Determination of Hydrogen Halide and Halogen Emissions from Stationary Sources Non-Isokinetic Method</title></titles><dates></dates><label>U.S. EPA Method 26</label><urls><related-urls><url>https://www3.epa.gov/ttnemc01/promgate/m-26.pdf</url></related-urls></urls><access-date>Accessed July 15, 2016</access-date></record></Cite></EndNote>]. The laboratory control spike recovery for perchlorate and chlorate was 100% and 115%, respectively which is within the accuracy of the methods 40-120%. The laboratory control spike

recovery for chloride was 107%, which is within the acceptance limit of the method 90-110%. Chlorate, perchlorate, or HCl were not detected in the ambient air background sample.

2.4.8 PCDD/PCDF

PCDD/PCDF were sampled as for energetics (see 2.4.6) but with the addition of a polyurethane foam plug (PUF) following the glass fiber filter. PCDD/PCDF samples were cleaned up and analyzed using an isotope dilution method based on U.S. EPA Method 23 [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>1991</Year><RecNum>3753</RecNum><DisplayText>[15]</DisplayText><record><rec-number>3753</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1312486572">3753</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Determination of polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans from stationary sources</title></titles><dates><year>1991</year></dates><isbn>40 CFR Part 60, Appendix A.</isbn><label>U.S. EPA Method 23</label><urls><related-urls><url>http://www.epa.gov/ttn/emc/promgate/m-23.pdf</url></related-urls></urls><access-date>Accessed November 10, 2015</access-date></record></Cite></EndNote>]. Concentrations were determined using high resolution gas chromatography/high resolution mass spectrometry (HRGC/HRMS) with a Hewlett-Packard gas chromatograph 6890 Series coupled to a Micromass Premier mass spectrometer (Waters Corp., Milford, MA, USA). U.S. EPA Method 8290 [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2007</Year><RecNum>4427</RecNum><DisplayText>[16]</DisplayText><record><rec-number>4427</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1332169164">4427</key></foreign-keys><ref-type name="Report">27</ref-type><contributors><tertiary-authors><author>SW-846</author></tertiary-authors></contributors><titles><title>Polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) by high-resolution gas chromatography/high-resolution mass spectrometry (HRGC/HRMS)</title></titles><dates><year>2007</year></dates><label>U.S. EPA Method 8290A</label><urls><related-urls><url>http://www.epa.gov/osw/hazard/testmethods/sw846/pdfs/8290a.pdf</url></related-urls></urls><access-date>Accessed November 21, 2012</access-date></record></Cite></EndNote>] was used for analysis of tetra- through octa-CDDs/Fs. The laboratory control spike recoveries were within the acceptable 40-130% range for Tetra to Hexa PCDD/PCDF and 25-130% for Hepta to Octa PCDD/PCDF for most of the congeners. The HpCDF recovery was slightly outside the acceptance criteria for three of the four samples (13-23%), PentaCDD was outside the acceptance criteria in two of the four samples (155% and

178%). The collected plume samples had 10-250 and 700- >10,000 times higher levels of Total and TEQ PCDDs/PCDFs, respectively, than the collected ambient background sample.

The 2005 World Health Organization (WHO) toxic equivalent factors (TEFs) [ADDIN EN.CITE ADDIN EN.CITE.DATA] were used to determine the PCDD/PCDF toxic equivalent (TEQ) emission factors (see Chapter 2.5.2 for calculations). Some of the seventeen TEF-weighted PCDD/PCDF congeners were undetected. The congeners that were not detected (ND) were considered as zero mass for the reported text calculations, however Appendix B shows both ND = 0 and ND = limit of detection mass value.

2.5 Calculations

2.5.1 Converting from mass/mass Carbon to mass/mass initial source

The emission ratio of each analyte/species of interest was calculated from the ratio of background-corrected pollutant concentrations to background-corrected carbon dioxide (CO_2) and carbon monoxide (CO) concentrations. Emissions factors were calculated using these emissions ratios following the carbon balance method [ADDIN EN.CITE ADDIN EN.CITE.DATA], and presented as mass pollutant per mass of charge weight. For the two skid waste types, the charge weight was expressed both as 1) the total initial weight of the waste plus the supplemental pallet and diesel fuel ("mass pollutant/mass initial source") as well as 2) the weight of the RFAAP waste alone ("mass pollutant/mass waste"). For the MK-90s the charge weight was the total mass of initial MK-90 source material in the pan, resulting in emission factors expressed as "mass pollutant/mass initial source" which is the same meaning as "mass pollutant/mass waste" since no supplemental fuels were added to the waste, Equations 2-1 to 2-4. Emission factors determined here are compared with the emission factors used in the RFAAP Human Health Risk Assessment document, specifically Table 2-13 [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2005</Year><RecNum>4856</RecNum><DisplayText>[19]</DisplayText><record><rec-number>4856</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1501764627">4856</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Human Health Risk Assessment for the Open Burning Ground, Radford Army Ammunition Plant</title></titles><dates><year>2005</year></dates><label>CH2M HILL</label><urls></urls></record></Cite></EndNote>].

$$EF_i = f_c \times \frac{Anlyte_i}{\sum C_j} \qquad \textit{Equation 2-1}$$

where:

EF_i = Emission factor of target analyte i in terms of mass pollutant per mass initial

source

fc = mass fraction of carbon in the initial source

$Analyte_i$ = the mass emission ratio of species i,

ΣC_j = the background corrected mass concentration of carbon in major carbon emissions species j (carbon calculated from ΔCO_2 and ΔCO).

$$EF_{Waste} = EF_i \times \frac{IW}{IW+SF} \qquad \textit{Equation 2-2}$$

where:

EF_{Waste} = Emission factor of target analyte i in terms of mass pollutant per mass waste

IW = Initial weight of waste

SF = Supplement fuel (pallet, cardboard, and diesel)

IW/(IW+SF) = 2.01 and 3.18 for skid waste type 1 and 2, respectively

The majority of the carbon emissions were emitted as CO_2 and CO. With this assumption, CO_2 and CO are the only carbon-containing compounds that were required to be measured.

2.5.2 PCDD/PCDF Toxic Equivalent Calculations

PCDDs and PCDFs include 75 and 135 congeners, respectively. Of these 210 congeners 17 are toxic and have been assigned toxic equivalency factor (TEF) values ([REF _Ref479230980 \h]). The TEQ value is obtained by multiplying the concentration of a PCDD/PCDF congener by its TEF-value and summing the result for all 17 toxic congeners.

*Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]. The 2005 World Health Organization PCDD/PCDF Toxic Equivalent Factors for mammals/humans.[ADDIN EN.CITE ADDIN EN.CITE.DATA]*

PCDDs	TEF	PCDFs	TEF
2,3,7,8 - TCDD	1	2,3,7,8 - TCDF	0.1
1,2,3,7,8 - PeCDD	1	1,2,3,7,8 - PeCDF	0.03
1,2,3,4,7,8 - HxCDD	0.1	2,3,4,7,8 - PeCDF	0.3
1,2,3,6,7,8 - HxCDD	0.1	1,2,3,4,7,8 - HxCDF	0.1
1,2,3,7,8,9 - HxCDD	0.1	1,2,3,6,7,8 - HxCDF	0.1
1,2,3,4,6,7,8 - HpCDD	0.01	1,2,3,7,8,9 - HxCDF	0.1
1,2,3,4,6,7,8,9 - OCDD	0.0003	2,3,4,6,7,8 - HxCDF	0.1
		1,2,3,4,6,7,8 - HpCDF	0.01
		1,2,3,4,7,8,9 - HpCDF	0.01
		1,2,3,4,6,7,8,9 - OCDF	0.0003

2.5.3 Data Variability

Standard deviation, as well as the relative standard deviation (RSD), were used for showing the measure of dispersion of three or more data values, see Equations 2-5 and 2-6. RSD indicates how precise the data is, for example a RSD of 50% indicates that the data is more spread out than a RSD of 20%.

$$Standard\ Deviation = \sqrt{\frac{\sum(x-\bar{x})^2}{(n-1)}} \qquad Equation\ 2\text{-}5$$

where:

x = each sample value, $\bar{x}$ = mean value of samples, n = number of samples

$$RSD\ (\%) = 100 \times \frac{Standard\ Deviation}{Sample\ Average} \qquad Equation\ 2\text{-}6$$

The relative percent difference (RPD) was used as a quality indicator when only two data values (duplicate samples) were obtained, Equation 2-7. RPD indicates how precise the data is, for example a RPD of 20% indicates that the data is more precise than a RPD of 50%.

$$RPD\ (\%) = 100 \times \frac{x-y}{(\frac{x+y}{2})} \qquad Equation\ 2\text{-}7$$

where:

x = sample number one, y = sample number two

3 Results and Discussion

3.1 PM

The $PM_{2.5}$ emissions are reported in [REF _Ref479322206 \h]. $PM_{2.5}$ emissions were higher from the MK-90 than from the skid waste ([REF _Ref479322206 \h]). The MK-90 $PM_{2.5}$ emission factor (15.5 g/kg initial source) is similar to those from static firing of CRV-7 (16 g/kg initial source) and MK-58 (34 g/kg initial source) rocket motors [ADDIN EN.CITE <EndNote><Cite><Author>Gullett</Author><Year>2016</Year><RecNum>4820</RecNum><DisplayText>[20]</DisplayText><record><rec-number>4820</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1490815957">4820</key></foreign-keys><ref-type name="Report">27</ref-type><contributors><authors><author>Gullett, Brian K.</author><author>Aurell, Johanna</author><author>Williams, Ryan</author></authors></contributors><titles><title>Characterization of Air Emissions from Open Burning and Open Detonation of Gun Propellants and Ammunition</title></titles><dates><year>2016</year></dates><pub-location>SERDP WP-2233</pub-location><urls><related-urls><url>https://www.serdp-estcp.org/index.php/Program-Areas/Weapons-Systems-and-Platforms/Energetic-Materials-and-Munitions/Munitions-Emissions/WP-2233/WP-2233-TR</url></related-urls></urls><access-date>Accessed March 29, 2017</access-date></record></Cite></EndNote>] and lower than static firing of Sparrow rocket motors (120 g/kg initial source) [ADDIN EN.CITE <EndNote><Cite><Author>Aurell</Author><Year>2015</Year><RecNum>4622</RecNum><DisplayText>[1]</DisplayText><record><rec-number>4622</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1422043961">4622</key></foreign-keys><ref-type name="Journal Article">17</ref-type><contributors><authors><author>Aurell, Johanna</author><author>Gullett, Brian K.</author><author>Tabor, Dennis</author><author>Williams, Ryan K.</author><author>Mitchell, William</author><author>Kemme, Michael R.</author></authors></contributors><titles><title>Aerostat-based sampling of emissions from open burning and open detonation of military ordnance</title><secondary-title>Journal of Hazardous Materials</secondary-title></titles><periodical><full-title>Journal of Hazardous Materials</full-title></periodical><pages>108-120</pages><volume>284</volume><number>0</number><keywords><keyword>Munitions</keyword><keyword>Emission factors</keyword><keyword>Open burning</keyword><keyword>Open detonation</keyword><keyword>Static firing</keyword></keywords><dates><year>2015</year><pub-dates><date>3/2/</date></pub-dates></dates><isbn>0304-3894</isbn><urls><related-urls><url>http://www.sciencedirect.com/science/article/pii/S0304389414008504</url></related-urls></urls><electronic-resource-

num>http://dx.doi.org/10.1016/j.jhazmat.2014.10.029</electronic-resource-num></record></Cite></EndNote>]. The HHRA document lists no PM emission factors, precluding comparison of these site-sampled values.

*Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]. $PM_{2.5}$ emission factors in g/kg initial source and lb/lb initial source.*

		$PM_{2.5}$	
		MK-90	Skid Waste - Type 2
	Unit	$n^a = 5$	$n^a = 2$
Average	g/kg initial source	15.5	2.3
Stand. Dev.[b]	g/kg initial source	1.73	N/A[e]
RSD[c]	%	11	N/A[e]
RPD[d]	%	N/A[e]	9.8
Average	lb/lb initial source	0.0155	0.0023
Stand. Dev.[b]	lb/lb initial source	0.0017	N/A[e]
Average	g/kg waste	15.5	7.3
Average	lb/lb waste	0.0155	0.0073

[a] Number of samples collected.
[b] Stand. Dev. – standard deviation, calculated only if $n \geq 3$.
[c] RSD – relative standard deviation, calculated only if $n \geq 3$.
[d] RPD – relative percent difference, calculated only if $n = 2$.
[e] N/A – not applicable.

3.2 Elements/Metals

3.2.1 Elements/Metals

Sixteen metals/elements were detected above instrument limits for one or both of the ordnance sources ([REF _Ref485721289 \h]). Lead (Pb) and copper (Cu) had the highest emission factors from the MK-90 burns of all the metals analyzed, 0.0102 and 0.00307 lb/lb initial source, respectively (Tables 3-2 to 3-4). Pb, chloride (Cl), potassium (K), Cu, and zinc (Zn) had the highest element emission factors for the "high metal" skid waste. The average standard deviation for the MK-90 metal/element emission factors was 29%. The average relative percent difference for the skid waste emission factors (only two samples were taken) was 55%. These relatively low values validate the precision of the sampling method, particularly given the small number (less than five) of samples. All element values from the XRF analyses for each collected sample are shown in Appendix A.

*Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]. Element emission factors in $PM_{2.5}$ fraction in mg/kg initial source and mg/kg waste.[a]*

	MK-90	Skid waste – Type 2

Element	n[b]	Average mg/kg initial source	Stand. Dev.[c]	RSD[d] %	n[b]	Average mg/kg initial source	Average mg/kg waste	RPD[e] %
Pb	5	10,186	1,103	11	2	678.9	2,158	40
Cu	5	3,073	380	12	2	17.4	55.4	92
Cl	5	30	24	80	2	80.4	255.5	24
Ca	5	28	5.8	20	2	2.17	6.91	20
K	5	25	5.2	20	2	43.4	138.0	1.9
As	4	21	5.3	25	2	1.45	4.62	62
Fe	5	16	3.3	21	2	0.53	1.70	129
Br	5	15	2.5	17	2	1.53	4.86	45
Ge	5	11	2.7	24	2	0.66	2.09	57
Y	5	11	2.8	26	2	0.80	2.53	46
Rb	5	8	1.6	20	2	0.81	2.57	41
Ba	4	6.4	0.42	6.6	2	0.24	0.75	36
Al	3	7.3[f]	5.9	80	0	ND[g]	ND[g]	N/A[h]
Cd	5	2.0	1.2	59	1	0.19	0.62	N/A[h]
Cr	4	1.4	0.21	15	1	0.038[f]	0.12[f]	N/A[h]
Zn	5	ND[g]	N/A[h]	N/A[h]	2	7.6	24.1	121

[a] Element concentrations were 22 times higher than the ambient air levels except for Cr which was four times higher than the ambient levels. All element values from XRF analyses are presented in Appendix A.
[b] Number of samples collected with detectable levels.
[c] Stand. Dev. – standard deviation, calculated only if $n \geq 3$
[d] RSD – relative standard deviation, calculated only if $n \geq 3$.
[e] RPD – relative percent difference, calculated only if $n = 2$.
[f] Results less than three times the uncertainty level of the analyses.
[g] ND – not detected.
[h] N/A – not applicable.

*Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]. Metal emission factors in $PM_{2.5}$ fraction in lb/lb initial source and lb/lb waste.*[a]

Element	MK-90				Skid waste - Type 2			
	n[b]	Average	Stand. Dev.[c]	RSD[d]	n[b]	Average	Average	RPD[e]
		lb/lb initial source		%		lb/lb initial source	lb/lb waste	%
Pb	5	1.02E-02	1.10E-03	11	2	6.79E-04	2.16E-03	40
Cu	5	3.07E-03	3.80E-04	12	2	1.74E-05	5.54E-05	92
Cl	5	2.97E-05	2.37E-05	80	2	8.04E-05	2.56E-04	24
Ca	5	2.84E-05	5.80E-06	20	2	2.17E-05	6.91E-06	20
K	5	2.53E-05	5.17E-06	20	2	4.34E-05	1.38E-04	1.9
As	4	2.08E-05	5.29E-06	25	2	1.45E-06	4.62E-06	62
Fe	5	1.60E-05	3.32E-06	21	2	5.34E-07	1.70E-06	129
Br	5	1.47E-05	2.49E-06	17	2	1.53E-06	4.86E-06	45
Ge	5	1.11E-05	2.71E-06	24	2	6.59E-07	2.09E-06	57
Rb	5	8.41E-06	1.64E-06	20	2	8.08E-07	2.57E-06	41
Y	5	1.07E-05	2.78E-06	26	2	7.95E-07	2.53E-06	46
Ba	4	6.36E-06	4.19E-07	6.6	2	2.37E-07	7.53E-07	36
Al	3	7.32E-06[f]	5.89E-06	80	0	ND[g] (6.11E-05)	ND[g]	N/A[h]
Cd	5	1.99E-06	1.18E-06	59	1	1.94E-07	6.18E-07	N/A[h]
Cr	4	1.40E-06	2.06E-07	15	1	3.79E-08[f]	1.21E-07[f]	N/A[h]
Zn	0	ND[g] (4.73E-07)	N/A[h]	N/A[h]	2	7.58E-06	2.41E-05	121

[a] Elements levels were 22 times higher than the ambient air levels except for Cr which was four times higher than the ambient levels. All element values from XRF analyses are presented in Appendix A
[b] Number of samples collected with detectable levels.
[c] Stand. Dev. – standard deviation, calculated only if n ≥ 3
[d] RSD – relative standard deviation, calculated only if n ≥ 3.
[e] RPD – relative percent difference, calculated only if n = 2.
[f] Results less than three times the uncertainty level of the analyses.
[g] ND – not detected, method detection limit within parentheses.
[h] N/A – not applicable.

The sampled emission factors were compared with the assumed emission factors used in the RFAAP EFs listed in the HHRA (Table 3-4) [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2005</Year><RecNum>4856</RecNum><DisplayText>[19]</DisplayText><record><rec-number>4856</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1501764627">4856</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Human Health Risk Assessment for the Open Burning Ground, Radford Army Ammunition Plant</title></titles><dates><year>2005</year></dates><label>CH2M HILL</label><urls></urls></record></Cite></EndNote>]. Of the twelve metals that overlapped for the MK-90s, seven sampled emission factors were lower than the RFAAP EFs and four emission factors were higher than the RFAAP EF (As, Cd, Pb, and Ag). One metal, Hg, was reported as ND so its ratio (<2.2) is not clearly greater or less than unity. For the twelve metals from the skid waste burns, emission factors

715 for ten metals were less than estimated in the HHRA. Two metals, As and Pb, were above unity.

720

*Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]. Comparison of EFs derived in this project with EFs used by RFAAP's HHRA.*

	MK-90			Skid waste		
Element	EF	RFAAP EF [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2005</Year><RecNum>4856</RecNum><DisplayText>[19]</DisplayText><record><rec-number>4856</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1501764627">4856</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Human Health Risk Assessment for the Open Burning Ground, Radford Army Ammunition Plant</title></titles><dates><year>2005</year></dates><label>CH2M HILL</label><urls></urls></record></Cite></EndNote>] lb/lb initial source	Ratio EF/RFAAP EF	EF	RFAAP EF [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2005</Year><RecNum>4856</RecNum><DisplayText>[19]</DisplayText><record><rec-number>4856</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1501764627">4856</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Human Health Risk Assessment for the Open Burning Ground, Radford Army Ammunition Plant</title></titles><dates><year>2005</year></dates><label>CH2M HILL</label><urls></urls></record></Cite></EndNote>] lb/lb waste	Ratio EF/RFAAP EF
Al	7.32E-06[a]	1.00E-02	0.0073	ND[b] (< 6.11E-05)	5.36E-02	<0.0011
Sb	2.32E-06[a]	5.62E-06	0.41	ND[b] (< 2.14E-	5.62E-06	<0.038

As	2.08 E-05	5.54E-07	37.5	4.62 E-06	5.54E-07	8.3
Ba	6.36 E-06	8.80E-07	0.072	7.53 E-07	8.80E-05	0.086
Cd	1.99 E-06	1.32E-05	1.5	6.18 E-07	1.32E-06	0.47
Cr	1.40 E-06	1.20E-05	0.12	1.21 E-07[f]	1.20E-05	0.010
Pb	1.02 E-02	2.06E-03	5.0	2.16 E-03	2.06E-03	1.1
Hg	ND[b] (<1.65E-06)	7.38E-07	<2.2	ND[b] (<1.65 E-07)	7.38E-07	<0.22
Ni	ND[b] (<3.32E-07)	1.98E-05	<0.017	8.19 E-09[a]	1.98E-05	0.0041
Se	9.38 E-07[a]	1.56E-06	0.60	ND[b] (<6.68 E-08)	1.56E-06	<0.043
Ag	1.27 E-06[a]	2.12E-07	6.0	2.06 E-07[a]	2.12E-07	0.97
Zn	ND[b] (<4.73E-07)	7.55E-05	<0.0063	2.41 E-05	7.55E-05	0.32

[a] Results less than three times the uncertainty level of the analyses.
[b] ND – not detected, detection limit within parentheses.

3.2.2 Chromium(VI)

The Cr(VI) emission factors are reported in Table 3-5. Analysis of the $PM_{2.5}$ solids showed that the percentage of Cr(VI) to total Cr in the emissions was 28% and 14% for the MK-90 and skid waste, respectively. Table 3-4 indicates that the total Cr emission factor from sampling was less than used in the HHRA for both MK-90 (12% of the HHRA emission factor) and skid waste (1% of the HHRA emission factor).

*Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]. Cr(VI) emission factors.*

		Cr(VI)	
	Unit	**MK 90 n[a] = 5**	**Skid Waste -Type 2 n[a] = 1**
Average	mg/kg initial source	0.39	0.0053
Stand. Dev.[b]	mg/kg initial source	0.13	N/A[d]
RSD[c]	%	34	N/A[d]
Average	lb/lb initial source	3.95E-07	5.31E-09
Stand. Dev.[b]	lb/lb initial source	1.34E-07	N/A[d]
Average	mg/kg waste	0.39	0.017
Average	lb/lb waste	3.95E-07	1.69E-08

[a] Number of samples collected with detectable levels. [b] Stand. Dev. – standard deviation,
[c] RSD – relative standard deviation, calculated only if $n \geq 3$. [d] N/A – not applicable.

Cr(VI) was detected in all five MK-90 samples collected but only in one of the three samples collected from the skid waste type 2 (Table 3-2). The collection time for the three Cr(VI) skid waste samples was approximately the same but the amount of carbon collected was approximately two times higher in the detected sample than the two with no detectable levels. This simply indicates a greater plume sampling efficiency (collection of oxidized carbon) during the one detectable sample.

3.3 HCl, chlorate, and perchlorate

No chlorate or perchlorate compounds were detected in any of the six samples collected from skid waste type 1 which was the "high Cl" waste (Table 3-6). The HCl emissions (0.000229 lb/lb initial source) from the skid waste were over 100 times lower than those emitted from static firing (versus open burning) of MK-58 (0.030 lb/lb initial source) and CRV-7 rocket motors (0.086 lb/lb initial source) [ADDIN EN.CITE <EndNote><Cite><Author>Gullett</Author><Year>2016</Year><RecNum>4820</RecNum><DisplayText>[20]</DisplayText><record><rec-number>4820</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2"

timestamp="1490815957">4820</key></foreign-keys><ref-type name="Report">27</ref-type><contributors><authors><author>Gullett, Brian K.</author><author>Aurell, Johanna</author><author>Williams, Ryan</author></authors></contributors><titles><title>Characterization of Air Emissions from Open Burning and Open Detonation of Gun Propellants and Ammunition</title></titles><dates><year>2016</year></dates><pub-location>SERDP WP-2233</pub-location><urls><related-urls><url>https://www.serdp-estcp.org/index.php/Program-Areas/Weapons-Systems-and-Platforms/Energetic-Materials-and-Munitions/Munitions-Emissions/WP-2233/WP-2233-TR</url></related-urls></urls><access-date>Accessed March 29, 2017</access-date></record></Cite></EndNote>]. Three of the six collected HCl samples were under the method reporting limit (no detectable levels of chloride).

*Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]. HCl, chlorate, and perchlorate emission factors from skid waste type 1.*

	Unit	Skid Waste -Type 1 HCl $n^a = 3$	Chlorate $n^a = 0$	Perchlorate $n^a = 0$
Average	mg/kg initial source	229	ND (0.054)[b]	ND (0.054)[b]
Stand. Dev.[d]	mg/kg initial source	135	N/A[c]	N/A[c]
RSD[e]	%	59	N/A[c]	N/A[c]
Average	mg/kg waste	459	ND (0.11)[b]	ND (0.11)[b]
Stand. Dev.[d]	mg/kg waste	272	N/A[c]	N/A[c]
Average	lb/lb initial source	2.29E-04	ND (5.40E-08)[b]	ND (5.40E-08)[b]
Stand. Dev.[d]	lb/lb initial source	1.35E-04	N/A[c]	N/A[c]
Average	lb/lb waste	4.59E-04	ND (1.08E-07)[b]	ND (1.08E-07)[b]
Stand. Dev.[d]	lb/lb waste	2.72E-04	N/A[c]	N/A[c]
Average	% into air from initial source[f]	8.4	N/A[c]	N/A[c]
Stand. Dev.[d]	% into air from initial source[f]	5.0	N/A[c]	N/A[c]
Average	% into air from waste[f]	26.8	N/A[c]	N/A[c]
Stand. Dev.[d]	% into air from waste[f]	15.9	N/A[c]	N/A[c]

[a] Number of samples collected with detectable levels.
[b] ND – not detected, detection limit within parentheses.
[c] N/A – not applicable.
[d] Stand. Dev. – standard deviation.
[e] RSD – relative standard deviation.
[f] percent of Cl in skid waste going into air as HCl.

3.4 PCDD/PCDF

The PCDD/PCDF emission factor from the Type 1, high Cl skid waste (1.77±1.59 ng TEQ/kg waste) was in the same range as emission factors from prescribed forest burns (1.55±1.65 ng

TEQ/kg biomass [ADDIN EN.CITE <EndNote><Cite><Author>Aurell</Author><Year>2013</Year><RecNum>4519</RecNum><DisplayText>[21]</DisplayText><record><rec-number>4519</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1386274739">4519</key></foreign-keys><ref-type name="Journal Article">17</ref-type><contributors><authors><author>Aurell, J.</author><author>Gullett, B. K.</author></authors></contributors><auth-address>[Aurell, Johanna; Gullett, Brian K.] US EPA, Off Res & Dev, Natl Risk Management Res Lab, Res Triangle Pk, NC 27711 USA.
Gullett, BK (reprint author), US EPA, Off Res & Dev, Natl Risk Management Res Lab, Res Triangle Pk, NC 27711 USA.
gullett.brian@epa.gov</auth-address><titles><title>Emission Factors from Aerial and Ground Measurements of Field and Laboratory Forest Burns in the Southeastern US: PM2.5, Black and Brown Carbon, VOC, and PCDD/PCDF</title><secondary-title>Environmental Science & Technology</secondary-title></titles><periodical><full-title>Environmental Science & Technology</full-title></periodical><pages>8443-8452</pages><volume>47</volume><number>15</number><keywords><keyword>trace gases</keyword><keyword>fire emissions</keyword><keyword>chemical-composition</keyword><keyword>particle emissions</keyword><keyword>tropical forest</keyword><keyword>biomass</keyword><keyword>simulations</keyword><keyword>combustion</keyword><keyword>aerosols</keyword><keyword>carolina</keyword></keywords><dates><year>2013</year><pub-dates><date>Aug</date></pub-dates></dates><isbn>0013-936X</isbn><accession-num>WOS:000323013400046</accession-num><work-type>Article</work-type><urls><related-urls><url><Go to ISI>://WOS:000323013400046</url></related-urls></urls><electronic-resource-num>10.1021/es402101k</electronic-resource-num><language>English</language></record></Cite></EndNote>]) and much lower than from open burning of municipal solid waste (1,765±1,474 ng TEQ/kg waste [ADDIN EN.CITE <EndNote><Cite><Author>Aurell</Author><Year>2012</Year><RecNum>4463</RecNum><DisplayText>[22]</DisplayText><record><rec-number>4463</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1349117161">4463</key></foreign-keys><ref-type name="Journal Article">17</ref-type><contributors><authors><author>Aurell, Johanna</author><author>Gullett, Brian K.</author><author>Yamamoto, Dirk</author></authors></contributors><titles><title>Emissions from Open Burning of Simulated Military Waste from Forward Operating Bases</title><secondary-title>Environmental Science & Technology</secondary-title></titles><periodical><full-title>Environmental Science & Technology</full-title></periodical><pages>11004-11012</pages><volume>46</volume><dates><year>2012</year></dates><publisher>American Chemical Society</publisher><isbn>0013-936X</isbn><urls><related-urls><url>http://pubs.acs.org/doi/abs/10.1021/es303131k</url></related-

urls></urls><electronic-resource-num>10.1021/es303131k</electronic-resource-num><access-date>2012/10/01</access-date></record></Cite></EndNote>]). The sampled emission factor was less than 0.1% of the value used in the HHRA. Values are shown in Table 3-7 and Figure 3-1. Emission factors for each homologue group and each TEF-weighted congener are shown in Appendix B, Tables B-1 to B-6. The MK-90s were not sampled for PCDD/PCDF.

*Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]. PCDD/PCDF results.*

	Unit	Skid waste – Type 1 Average	Stand. Dev.	RSD	EF RFAAP [AD ExcludeAuth="1"><Year>2005</Year><RecNum number>4856</rec-number><foreign-keys><ke timestamp="1501764627">4856</key type><contributors></contributors><titles><title Radford Army Ammunition Plant</title> HILL</label><urls>
PCDD Total	ng/kg initial source	13.2	8.6	66%	
PCDF Total	ng/kg initial source	33.4	37.5	112%	
PCDD/PCDF Total	ng/kg initial source	46.6	41.1	88%	
PCDD TEQ[a]	ng TEQ/kg initial source	0.10	0.15	158%	
PCDF TEQ[a]	ng TEQ/kg initial source	0.79	0.71	90%	
PCDD/PCDF TEQ SUM[a]	ng TEQ/kg initial source	0.88	0.79	90%	
PCDD Total	ng/kg waste	26.5	17.4	66%	
PCDF Total	ng/kg waste	67.1	75.3	112%	
PCDD/PCDF Total	ng/kg waste	93.6	82.6	88%	
PCDD TEQ[a]	ng TEQ/kg waste	0.19	0.30	158%	

PCDF TEQ[a]	ng TEQ/kg waste	1.58	1.43	90%
PCDD/PCDF TEQ SUM[a]	ng TEQ/kg waste	1.77	1.59	90%

[a] Not detected congeners set to zero. Appendix B shows data with not detected congeners set to the limit of detection. [b] NV = no value.

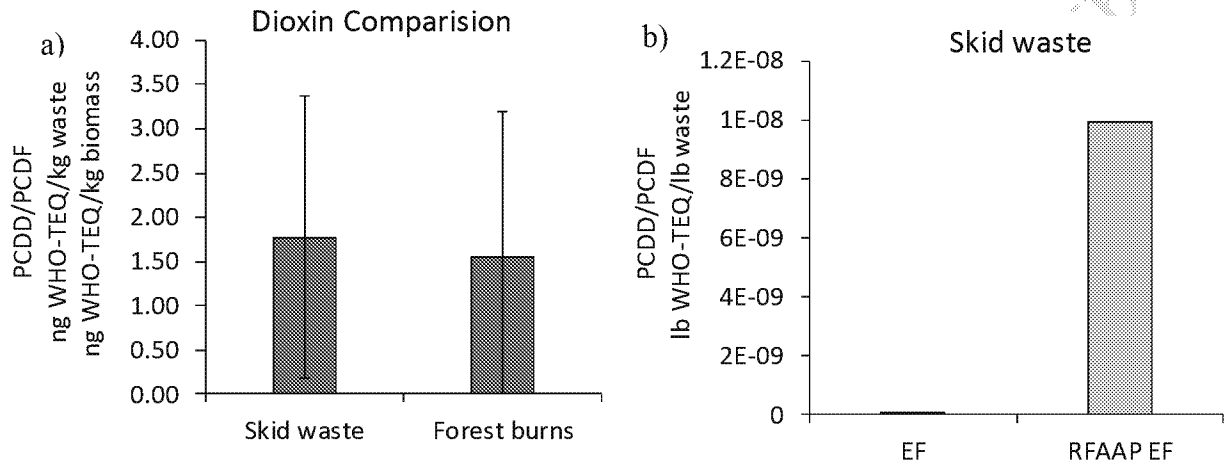

*Figure [STYLEREF 1 \s]-[SEQ Figure * ARABIC \s 1]. Comparison of PCDD/PCDF (Dioxin) emission factors from a) skid waste and forest burns [ADDIN EN.CITE <EndNote><Cite><Author>Aurell</Author><Year>2013</Year><RecNum>4519</RecNum><DisplayText>[21]</DisplayText><record><rec-number>4519</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1386274739">4519</key></foreign-keys><ref-type name="Journal Article">17</ref-type><contributors><authors><author>Aurell, J.</author><author>Gullett, B. K.</author></authors></contributors><auth-address>[Aurell, Johanna; Gullett, Brian K.] US EPA, Off Res & Dev, Natl Risk Management Res Lab, Res Triangle Pk, NC 27711 USA.
Gullett, BK (reprint author), US EPA, Off Res & Dev, Natl Risk Management Res Lab, Res Triangle Pk, NC 27711 USA.
gullett.brian@epa.gov</auth-address><titles><title>Emission Factors from Aerial and Ground Measurements of Field and Laboratory Forest Burns in the Southeastern US: PM2.5, Black and Brown Carbon, VOC, and PCDD/PCDF</title><secondary-title>Environmental Science & Technology</secondary-title></titles><periodical><full-title>Environmental Science & Technology</full-title></periodical><pages>8443-8452</pages><volume>47</volume><number>15</number><keywords><keyword>trace gases</keyword><keyword>fire emissions</keyword><keyword>chemical-composition</keyword><keyword>particle emissions</keyword><keyword>tropical forest</keyword><keyword>biomass</keyword><keyword>simulations</keyword><keyword>combustion</keyword><keyword>aerosols</keyword><keyword>carolina</keyword></keywords><dates><year>2013</year><pub-dates><date>Aug</date></pub-dates></dates><isbn>0013-936X</isbn><accession-*

num>WOS:000323013400046</accession-num><work-type>Article</work-type><urls><related-urls><url><Go to ISI>://WOS:000323013400046</url></related-urls></urls><electronic-resource-num>10.1021/es402101k</electronic-resource-num><language>English</language></record></Cite></EndNote>], and b) emission factor derived from this study (EF) and emission factor used today by RFAAP (RFAAP EF [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2005</Year><RecNum>4856</RecNum><DisplayText>[19]</DisplayText><record><rec-number>4856</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1501764627">4856</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Human Health Risk Assessment for the Open Burning Ground, Radford Army Ammunition Plant</title></titles><dates><year>2005</year></dates><label>CH2M HILL</label><urls></urls></record></Cite></EndNote>]).

3.5 VOCs

VOC sampling was prioritized only for the type 2 skid waste due to project time limitations. All VOCs analyzed are presented in Tables 3-8 to 3-11. Toluene (3.26E-4 lb/lb waste), benzene (3.11-04 lb/lb waste), naphthalene (1.45E-04 lb/lb waste), methylene chloride (1.26E-04 lb/lb waste), styrene (5.07E-05 lb/lb waste), and xylenes (5.73E-05 lb/lb waste) were the most abundant VOCs emitted from skid waste type 2, all on EPA's list of hazardous air pollutants [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2008</Year><RecNum>4440</RecNum><DisplayText>[7]</DisplayText><record><rec-number>4440</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1335539868">4440</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Clean Air Act: Title 42 - The public health and welfare</title></titles><pages>5713</pages><dates><year>2008</year></dates><pub-location>U.S. Government Printing Office</pub-location><label>U.S. EPA Hazardous Air Pollution List</label><urls><related-urls><url>http://www.gpo.gov/fdsys/pkg/USCODE-2008-title42/pdf/USCODE-2008-title42-chap85.pdf</url></related-urls></urls><remote-database-name>http://www.gpo.gov/fdsys/pkg/USCODE-2008-title42/pdf/USCODE-2008-title42-chap85.pdf</remote-database-name><access-date>Accessed May 5 2014</access-date></record></Cite></EndNote>]. These emission values compare to emissions from static fire of rocket motors: toluene 4.5E-04 lb/lb waste, naphthalene 9.2E-06 lb/lb waste, and xylenes 1.2E-03 lb/lb waste [ADDIN EN.CITE <EndNote><Cite><Author>Aurell</Author><Year>2015</Year><RecNum>4622</RecNum><DisplayText>[1]</DisplayText><record><rec-number>4622</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1422043961">4622</key></foreign-keys><ref-type name="Journal

Article">17</ref-type><contributors><authors><author>Aurell, Johanna</author><author>Gullett, Brian K.</author><author>Tabor, Dennis</author><author>Williams, Ryan K.</author><author>Mitchell, William</author><author>Kemme, Michael R.</author></authors></contributors><titles><title>Aerostat-based sampling of emissions from open burning and open detonation of military ordnance</title><secondary-title>Journal of Hazardous Materials</secondary-title></titles><periodical><full-title>Journal of Hazardous Materials</full-title></periodical><pages>108-120</pages><volume>284</volume><number>0</number><keywords><keyword>Munitions</keyword><keyword>Emission factors</keyword><keyword>Open burning</keyword><keyword>Open detonation</keyword><keyword>Static firing</keyword></keywords><dates><year>2015</year><pub-dates><date>3/2/</date></pub-dates></dates><isbn>0304-3894</isbn><urls><related-urls><url>http://www.sciencedirect.com/science/article/pii/S0304389414008504</url></related-urls></urls><electronic-resource-num>http://dx.doi.org/10.1016/j.jhazmat.2014.10.029</electronic-resource-num></record></Cite></EndNote>]. Of the 26 compounds common between sampled and detectable VOC emissions at Radford and the HHRA, 25 of the VOCs were less than the HHRA emission factor (Table 3-8). Only chloromethane was found at RFAAP to be higher (2.3 times) the HHRA emission factor.

*Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]. VOC Emission Factors in lb/lb waste from skid waste type 2.*

Compound	n[a]	Average[b] lb/lb waste	Stand. Dev.[c]	RSD[d] %	RPD[e] %	RFAAP EF [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2005</Year><RecNum>4856</RecNum><DisplayText>[19]</DisplayText><record><rec-number>4856</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1501764627">4856</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Human Health Risk Assessment for the Open Burning Ground, Radford Army Ammunition Plant</title></titles><dates><year>2005</year></dates><label>CH2M HILL</label><urls></urls></record></Cite></EndNote>] lb/lb waste	Ratio EF/RFAAP EF
1,1,1-Trichloroethane[f]	0	ND (8.04E-08)				1.00E-04	
1,1,2,2-Tetrachloroethane[f]	0	ND (9.38E-08)				1.04E-04	
1,1,2-Trichloroethane[f]	1	1.11E-06				1.15E-04	0.010
1,1-Dichloroethane	0	ND (3.95E-08)				2.92E-05	
1,1-Dichloroethene	0	ND (1.14E-07)				4.94E-05	
1,2,4-Trichlorobenzene[f]	0	ND (2.75E-07)				3.28E-06	<0.084
1,2,4-Trimethylbenzene	4	2.72E-05	1.53E-05	56		5.09E-04	0.053
1,2-Dibromo-3-chloropropane	0	ND (1.41E-07)				NV[g]	
1,2-Dibromoethane	0	ND (6.57E-08)				NV[g]	
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	3	1.46E-07	1.51E-07	103		NV[g]	
1,2-Dichlorobenzene	0	ND (1.14E-07)				3.28E-06	<0.035

Compound	n[a]	Average[b]	Stand. Dev.[c]	RSD[d]	RPD[e]	RFAAP EF [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2005</Year><RecNum>4856</RecNum><DisplayText>[19]</DisplayText><record><rec-number>4856</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1501764627">4856</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Human Health Risk Assessment for the Open Burning Ground, Radford Army Ammunition Plant</title></titles><dates><year>2005</year></dates><label>CH2M HILL</label><urls></urls></record></Cite></EndNote>]	Ratio EF/RFAAP EF
		lb/lb waste		%	%	lb/lb waste	
1,2-Dichloroethane	1	1.01E-07				4.31E-05	0.002
1,2-Dichloropropane	1	1.34E-06				4.31E-05	0.031
1,3,5-Trimethylbenzene	4	7.28E-06	4.13E-06	57		4.31E-05	0.169
1,3-Butadiene[f]	4	1.97E-05	5.32E-06	27		4.35E-05	0.453
1,3-Dichlorobenzene	1	1.14E-07				NV[g]	
1,4-Dichlorobenzene	1	1.73E-07				3.28E-06	0.053
1,4-Dioxane	2	6.93E-07			71	NV[g]	
2,2,4-Trimethylpentane (Isooctane)	4	7.21E-07	7.11E-07	99		NV[g]	
2-Butanone (MEK)	4	1.02E-05	6.02E-06	59		NV[g]	
2-Hexanone	1	6.43E-06				NV[g]	
2-Propanol (Isopropyl Alcohol)	1	3.95E-06				NV[g]	
4-Methyl-2-pentanone	4	1.47E-06	1.60E-06	109		NV[g]	

Compound	n[a]	Average[b]	Stand. Dev.[c]	RSD[d]	RPD[e]	RFAAP EF [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2005</Year><RecNum>4856</RecNum><DisplayText>[19]</DisplayText><record><rec-number>4856</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1501764627">4856</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Human Health Risk Assessment for the Open Burning Ground, Radford Army Ammunition Plant</title></titles><dates><year>2005</year></dates><label>CH2M HILL</label><urls></urls></record></Cite></EndNote>]	Ratio EF/RFAAP EF
		lb/lb waste		%	%	lb/lb waste	
Acetone	4	4.47E-05	2.70E-05	35		7.44E-04	0.060
Acetonitrile[f]	4	2.69E-05	1.58E-05	56		NV[g]	
Benzene[f]	4	3.11E-04	1.85E-04	59		9.69E-04	0.321
Bromodichloromethane	0	ND (6.37E-08)				9.69E-04	
Bromoform	0	ND (9.38E-08)				NV[g]	
Carbon Disulfide[f]	1	1.07E-06				3.25E-06	0.329
Carbon Tetrachloride[f]	4	1.09E-06	1.15E-06	106		3.25E-06	0.335
Chlorobenzene[f]	1	1.71E-06				3.25E-06	0.526
Chloroethane	3	2.35E-06	1.68E-06	71		3.25E-06	0.723
Chloroform[f]	3	2.23E-07	1.55E-07	70		3.25E-06	0.069
Chloromethane[f]	4	7.58E-06	6.64E-06	88		3.25E-06	2.332
cis-1,2-Dichloroethene	0	ND (6.23E-08)				NV[g]	

Compound	n[a]	Average[b]	Stand. Dev.[c]	RSD[d]	RPD[e]	RFAAP EF [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2005</Year><RecNum>4856</RecNum><DisplayText>[19]</DisplayText><record><rec-number>4856</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1501764627">4856</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Human Health Risk Assessment for the Open Burning Ground, Radford Army Ammunition Plant</title></titles><dates><year>2005</year></dates><label>CH2M HILL</label><urls></urls></record></Cite></EndNote>]	Ratio EF/RFAAP EF
		lb/lb waste		%	%	lb/lb waste	
cis-1,3-Dichloropropene[f]	0	ND (7.37E-08)				NV[g]	
Cumene[f]	4	3.75E-06	2.41E-06	64		NV[g]	
Cyclohexane	1	8.71E-06				2.67E-05	0.326
Dibromochloromethane	0	ND (4.56E-08)				NV[g]	
Dichlorodifluoromethane (CFC 12)	3	6.72E-06	5.64E-06	84		NV[g]	
Ethanol	4	1.06E-05	7.98E-06	80		NV[g]	
Ethylbenzene[f]	4	2.08E-05	1.00E-05	48		4.53E-05	0.459
Hexachlorobutadiene[f]	0	ND (2.01E-07)		N/A		NV[g]	
m,p-Xylenes[f]	4	4.11E-05	1.91E-05	46		NV[g]	
Methyl tert-Butyl Ether	0	ND (4.69E-08)				NV[g]	
Methylene Chloride[f]	4	1.26E-04	2.37E-04	189		1.17E-03	0.108
Naphthalene[f]	4	1.45E-04	8.23E-05	57		7.87E-04	0.184

Compound	n[a]	Average[b] lb/lb waste	Stand. Dev.[c]	RSD[d] %	RPD[e] %	RFAAP EF [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2005</Year><RecNum>4856</RecNum><DisplayText>[19]</DisplayText><record><rec-number>4856</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1501764627">4856</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Human Health Risk Assessment for the Open Burning Ground, Radford Army Ammunition Plant</title></titles><dates><year>2005</year></dates><label>CH2M HILL</label><urls></urls></record></Cite></EndNote>] lb/lb waste	Ratio EF/RFAAP EF
n-Heptane	4	4.70E-06	1.85E-06	39		NV[g]	
n-Hexane	4	1.63E-05	2.94E-05	180		2.56E-05	0.637
n-Octane	4	1.56E-05	6.08E-06	39		NV[g]	
o-Xylene[f]	4	1.61E-05	8.53E-06	53		NV[g]	
Styrene[f]	4	5.07E-05	3.15E-05	62		5.56E-05	0.912
Tetrachloroethene	2	6.11E-07			185	NV[g]	
Tetrahydrofuran (THF)	3	7.30E-07	2.04E-07	28		NV[g]	
Toluene[f]	4	3.26E-04	4.10E-04	126		4.75E-04	0.686
trans-1,2-Dichloroethene	0	ND (8.04E-08)				NV[g]	
trans-1,3-Dichloropropene	0	ND (7.37E-08)				NV[g]	
Trichloroethene	1	2.81E-07				6.59E-05	0.004
Trichlorofluoromethane	4	2.48E-06	1.91E-06	77		NV[g]	

Compound	n [a]	Average [b]	Stand. Dev. [c]	RSD [d]	RPD [e]	RFAAP EF [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2005</Year><RecNum>4856</RecNum><DisplayText>[19]</DisplayText><record><rec-number>4856</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1501764627">4856</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Human Health Risk Assessment for the Open Burning Ground, Radford Army Ammunition Plant</title></titles><dates><year>2005</year></dates><label>CH2M HILL</label><urls></urls></record></Cite></EndNote>]	Ratio EF/RFAAP EF
	lb/lb waste			%	%	lb/lb waste	
Trichlorotrifluoroethane	4	1.00E-06	1.11E-06	111		NV [g]	
Vinyl Chloride [f]	0	ND (9.38E-08)				9.28E-05	
Xylenes	4	5.73E-05	2.75E-05	48		4.52E-04	0.127

[a] Number of samples with detectable levels out of 4 samples.

[b] ND – not detected. Detection limit within parentheses.

[c] Stand. Dev. – standard deviation, calculated only if n ≥ 3.

[d] RSD – relative standard deviation, calculated only if n ≥ 3.

[e] RPD – relative percent difference, calculated only if n = 2.

[f] On U.S. EPA's list of hazardous air pollutants [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2008</Year><RecNum>4440</RecNum><DisplayText>[7]</DisplayText><record><rec-number>4440</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1335539868">4440</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Clean Air Act: Title 42 - The public health and welfare</title></titles><pages>5713</pages><dates><year>2008</year></dates><pub-location>U.S. Government Printing Office</pub-location><label>U.S. EPA Hazardous Air Pollution List</label><urls><related-urls><url>http://www.gpo.gov/fdsys/pkg/USCODE-2008-title42/pdf/USCODE-2008-title42-chap85.pdf</url></related-urls></urls><remote-database-name>http://www.gpo.gov/fdsys/pkg/USCODE-2008-title42/pdf/USCODE-2008-title42-chap85.pdf</remote-database-name><access-date>Accessed May 5 2014</access-date></record></Cite></EndNote>]

[g] NV = no value.

940

*Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]. VOC Emission Factors in mg/kg waste from skid waste type 2.*

Compound	n[a]	Average[b] mg/kg waste	Stand. Dev.[c]	RSD[d] %	RPD[e] %
1,1,1-Trichloroethane[f]	0	ND (0.080)			
1,1,2,2-Tetrachloroethane[f]	0	ND (0.094)			
1,1,2-Trichloroethane[f]	1	1.11			
1,1-Dichloroethane	0	ND (0.040)			
1,1-Dichloroethene	0	ND (0.11)			
1,2,4-Trichlorobenzene[f]	0	ND (0.28)			
1,2,4-Trimethylbenzene	4	27.17	15.31	56	
1,2-Dibromo-3-chloropropane	0	ND (0.14)			
1,2-Dibromoethane	0	ND (0.066)			
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	3	0.15	0.15	103	
1,2-Dichlorobenzene	0	ND (0.11)			
1,2-Dichloroethane	1	0.1			
1,2-Dichloropropane	1	1.34			
1,3,5-Trimethylbenzene	4	7.28	4.13	57	
1,3-Butadiene[f]	4	19.67	5.32	27	
1,3-Dichlorobenzene	1	0.11			
1,4-Dichlorobenzene	1	0.17			
1,4-Dioxane	2	0.69			71
2,2,4-Trimethylpentane (Isooctane)	4	0.72	0.71	99	
2-Butanone (MEK)	4	10.24	6.02	59	
2-Hexanone	1	6.43			
2-Propanol (Isopropyl Alcohol)	1	3.95			
4-Methyl-2-pentanone	4	1.47	1.6	109	
Acetone	4	44.7	26.95	60	
Acetonitrile[f]	4	26.9	15.8	59	
Benzene[f]	4	310.88	184.78	59	
Bromodichloromethane	0	ND (0.064)			
Bromoform	0	ND (0.094)			
Carbon Disulfide[f]	0	1.07			
Carbon Tetrachloride[f]	4	1.09	1.15	106	

Compound	n[a]	Average[b] mg/kg waste	Stand. Dev.[c]	RSD[d] %	RPD[e] %
Chlorobenzene[f]	1	1.71			
Chloroethane	3	2.35	1.68	71	
Chloroform[f]	3	0.22	0.16	70	
Chloromethane[f]	4	7.58	6.64	88	
cis-1,2-Dichloroethene	0	ND (0.062)			
cis-1,3-Dichloropropene[f]	0	ND (0.074)			
Cumene[f]	4	3.75	2.41	64	
Cyclohexane	1	8.71			
Dibromochloromethane	0	ND (0.046)			
Dichlorodifluoromethane (CFC 12)	3	6.72	5.64	84	
Ethanol	4	10.63	7.98	75	
Ethylbenzene[f]	4	20.81	10.04	48	
Hexachlorobutadiene[f]	0	ND (0.20)			
m,p-Xylenes[f]	4	41.14	19.07	46	
Methyl tert-Butyl Ether	0	ND (0.047)			
Methylene Chloride[f]	4	125.62	237.46	189	
Naphthalene[f]	4	144.54	82.32	57	
n-Heptane	4	4.7	1.85	39	
n-Hexane	4	16.35	29.36	180	
n-Octane	4	15.62	6.08	39	
o-Xylene[f]	4	16.12	8.53	53	
Styrene[f]	4	50.71	31.49	62	
Tetrachloroethene	2	0.61			185
Tetrahydrofuran (THF)	3	0.73	0.2	28	
Toluene[f]	4	326.46	409.87	126	
trans-1,2-Dichloroethene	0	ND (0.080)			
trans-1,3-Dichloropropene	0	ND (0.074)			
Trichloroethene	1	0.28			
Trichlorofluoromethane	4	2.48	1.91	77	
Trichlorotrifluoroethane	4	1	1.11	111	
Vinyl Chloride[f]	0	ND (0.094)			

[a] Number of samples with detectable levels out of 4 samples.

[b] ND – not detected. Detection limit within parentheses.

[c] Stand. Dev. – standard deviation, calculated only if n ≥ 3.

[d] RSD – relative standard deviation, calculated only if n ≥ 3.

[e] RPD – relative percent difference, calculated only if n = 2.

[f] On U.S. EPA's list of hazardous air pollutants [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2008</Year><RecNum>4440</RecNum><DisplayText>[7]</DisplayText><record><rec-number>4440</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1335539868">4440</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Clean Air Act: Title 42 - The public health and welfare</title></titles><pages>5713</pages><dates><year>2008</year></dates><pub-location>U.S. Government

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*Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]. VOC Emission Factors in lb/lb initial source from skid waste type 2.*

Compound	n[a]	Average[b] lb/lb initial source	Stand. Dev.[c]	RSD[d] %	RPD[e] %
1,1,1-Trichloroethane[f]	0	ND (2.53E-08)			
1,1,2,2-Tetrachloroethane[f]	0	ND (2.95E-08)			
1,1,2-Trichloroethane[f]	1	3.48E-07			
1,1-Dichloroethane	0	ND (1.24E-08)			
1,1-Dichloroethene	0	ND (3.58E-08)			
1,2,4-Trichlorobenzene[f]	0	ND (8.64E-08)			
1,2,4-Trimethylbenzene	4	8.55E-06	4.82E-06	56	
1,2-Dibromo-3-chloropropane	0	ND (4.43E-08)			
1,2-Dibromoethane	0	ND (2.07E-08)			
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	3	4.60E-08	4.74E-08	103	
1,2-Dichlorobenzene	0	ND (3.58E-08)			
1,2-Dichloroethane	1	3.16E-08			
1,2-Dichloropropane	1	4.22E-07			
1,3,5-Trimethylbenzene	4	2.29E-06	1.30E-06	57	
1,3-Butadiene[f]	4	6.19E-06	1.67E-06	27	
1,3-Dichlorobenzene	1	3.58E-08			
1,4-Dichlorobenzene	1	5.45E-08			
1,4-Dioxane	2	2.18E-07			71
2,2,4-Trimethylpentane (Isooctane)	4	2.27E-07	2.24E-07	99	
2-Butanone (MEK)	4	3.22E-06	1.89E-06	59	
2-Hexanone	1	2.02E-06			
2-Propanol (Isopropyl Alcohol)	1	1.24E-06			
4-Methyl-2-pentanone	4	4.64E-07	5.04E-07	109	
Acetone	4	1.78E-05	6.16E-06	35	
Acetonitrile[f]	4	1.10E-05	6.20E-06	56	
Benzene[f]	4	9.78E-05	5.81E-05	59	
Bromodichloromethane	0	ND (2.00E-08)			
Bromoform	0	ND (2.95E-08)			
Carbon Disulfide[f]	1	3.37E-07			
Carbon Tetrachloride[f]	4	3.43E-07	3.63E-07	106	
Chlorobenzene[f]	1	5.37E-07			

Compound	n[a]	Average[b] lb/lb initial source	Stand. Dev.[c]	RSD[d] %	RPD[e] %
Chloroethane	3	7.40E-07	5.28E-07	71	
Chloroform[f]	3	7.02E-08	4.89E-08	70	
Chloromethane[f]	4	2.38E-06	2.09E-06	88	
cis-1,2-Dichloroethene	0	ND (1.96E-08)			
cis-1,3-Dichloropropene[f]	0	ND (2.32E-08)			
Cumene[f]	4	1.18E-06	7.58E-07	64	
Cyclohexane	1	2.74E-06			
Dibromochloromethane	0	ND (1.43E-08)			
Dichlorodifluoromethane (CFC 12)	3	2.11E-06	1.77E-06	84	
Ethanol	4	3.56E-06	2.85E-06	80	
Ethylbenzene[f]	4	6.55E-06	3.16E-06	48	
Hexachlorobutadiene[f]	0	ND (6.32E-08)			
m,p-Xylenes[f]	4	1.29E-05	6.00E-06	46	
Methyl tert-Butyl Ether	0	ND (1.48E-08)			
Methylene Chloride[f]	4	3.95E-05	7.47E-05	189	
Naphthalene[f]	4	4.55E-05	2.59E-05	57	
n-Heptane	4	1.48E-06	5.81E-07	39	
n-Hexane	4	5.14E-06	9.24E-06	180	
n-Octane	4	4.92E-06	1.91E-06	39	
o-Xylene[f]	4	5.07E-06	2.68E-06	53	
Styrene[f]	4	1.60E-05	9.91E-06	62	
Tetrachloroethene	2	1.92E-07			
Tetrahydrofuran (THF)	3	2.30E-07	6.41E-08	28	
Toluene[f]	4	1.03E-04	1.29E-04	126	
trans-1,2-Dichloroethene	0	ND (2.53E-08)			
trans-1,3-Dichloropropene	0	ND (2.32E-08)			
Trichloroethene	1	8.85E-08			
Trichlorofluoromethane	4	7.80E-07	6.02E-07	77	
Trichlorotrifluoroethane	4	3.15E-07	3.50E-07	111	
Vinyl Chloride[f]	0	ND (2.95E-08)			

[a] Number of samples with detectable levels out of 4 samples.

[b] ND – not detected. Detection limit within parentheses.

[c] Stand. Dev. – standard deviation, calculated only if n ≥ 3.

[d] RSD – relative standard deviation, calculated only if n ≥ 3.

[e] RPD – relative percent difference, calculated only if n = 2.

[f] On U.S. EPA's list of hazardous air pollutants [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2008</Year><RecNum>4440</RecNum><DisplayText>[7]</DisplayText><record><rec-number>4440</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1335539868">4440</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Clean Air Act: Title 42 - The public health and welfare</title></titles><pages>5713</pages><dates><year>2008</year></dates><pub-

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*Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]. VOC Emission Factors in mg/kg initial source.*

Compound	n[a]	Average[b] mg/kg initial source	Stand. Dev.[c]	RSD[d] %	RPD[e] %
1,1,1-Trichloroethane[f]	0	ND (0.025)			
1,1,2,2-Tetrachloroethane[f]	0	ND (0.030)			
1,1,2-Trichloroethane[f]	1	0.35			
1,1-Dichloroethane	0	ND (0.012)			
1,1-Dichloroethene	0	ND (0.036)			
1,2,4-Trichlorobenzene[f]	0	ND (0.086)			
1,2,4-Trimethylbenzene	4	8.55	4.82	56	
1,2-Dibromo-3-chloropropane	0	ND (0.044)			
1,2-Dibromoethane	0	ND (0.021)			
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	3	0.046	0.047	103	
1,2-Dichlorobenzene	0	ND (0.036)			
1,2-Dichloroethane	1	0.03			
1,2-Dichloropropane	1	0.42			
1,3,5-Trimethylbenzene	4	2.29	1.3	57	
1,3-Butadiene[f]	4	6.19	1.67	27	
1,3-Dichlorobenzene	1	0.04			
1,4-Dichlorobenzene	1	0.05			
1,4-Dioxane	2	0.22			71
2,2,4-Trimethylpentane (Isooctane)	4	0.23	0.22	99	
2-Butanone (MEK)	4	3.22	1.89	59	
2-Hexanone	1	2.02			
2-Propanol (Isopropyl Alcohol)	1	1.24			
4-Methyl-2-pentanone	4	0.46	0.5	109	
Acetone	4	14.06	8.48	60	
Acetonitrile[f]	4	8.46	4.97	59	
Benzene[f]	4	97.8	58.13	59	
Bromodichloromethane	0	ND (0.020)			
Bromoform	0	ND (0.030)			
Carbon Disulfide[f]	0	ND (0.17)			
Carbon Tetrachloride[f]	4	0.34	0.36	106	

Compound	n[a]	Average[b] mg/kg initial source	Stand. Dev.[c]	RSD[d] %	RPD[e] %
Chlorobenzene[f]	1	0.54			
Chloroethane	3	0.74	0.53	71	
Chloroform[f]	3	0.07	0.05	70	
Chloromethane[f]	4	2.38	2.09	88	
cis-1,2-Dichloroethene	0	ND (0.020)			
cis-1,3-Dichloropropene[f]	0	ND (0.023)			
Cumene[f]	4	1.18	0.76	64	
Cyclohexane	1	2.74			
Dibromochloromethane	0	ND (0.014)			
Dichlorodifluoromethane (CFC 12)	3	2.11	1.77	84	
Ethanol	4	3.34	2.51	75	
Ethylbenzene[f]	4	6.55	3.16	48	
Hexachlorobutadiene[f]	0	ND (0.063)			
m,p-Xylenes[f]	4	12.94	6	46	
Methyl tert-Butyl Ether	0	ND (0.015)			
Methylene Chloride[f]	4	39.52	74.71	189	
Naphthalene[f]	4	45.47	25.9	57	
n-Heptane	4	1.48	0.58	39	
n-Hexane	4	5.14	9.24	180	
n-Octane	4	4.92	1.91	39	
o-Xylene[f]	4	5.07	2.68	53	
Styrene[f]	4	15.95	9.91	62	
Tetrachloroethene	2	0.19			185
Tetrahydrofuran (THF)	3	0.23	0.06	28	
Toluene[f]	4	102.71	128.94	126	
trans-1,2-Dichloroethene	0	ND (0.025)			
trans-1,3-Dichloropropene	0	ND (0.023)			
Trichloroethene	1	0.09			
Trichlorofluoromethane	4	0.78	0.6	77	
Trichlorotrifluoroethane	4	0.32	0.35	111	
Vinyl Chloride[f]	0	ND (0.030)			

[a] Number of samples with detectable levels out of 4 samples.

[b] ND – not detected. Detection limit within parentheses.

[c] Stand. Dev. – standard deviation, calculated only if $n \geq 3$.

[d] RSD – relative standard deviation, calculated only if $n \geq 3$.

[e] RPD – relative percent difference, calculated only if $n = 2$.

[f] On U.S. EPA's list of hazardous air pollutants [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2008</Year><RecNum>4440</RecNum><DisplayText>[7]</DisplayText><record><rec-number>4440</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1335539868">4440</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Clean Air Act:

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3.6 Energetics

None of the energetics and nitroaromatic compounds for the MK-90 rocket motors exceeded the analytical method detection limit (Table 3-12). Energetics were not sampled for the skid waste due to time limitations. The ratio of the method detection limit (for the sampled emission factor) to that of the HHRA emission factor resulted in eight overlapping compounds to be less than 1.1.

Table [STYLEREF 1 \s]-[SEQ Table * ARABIC \s 1]. Energetics based on method detection limit.

Energetics	MK-90 mg/kg initial source	MK-90 lb/lb initial source	RFAAP EF [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2005</Year><RecNum>4856</RecNum><DisplayText>[19]</DisplayText><record><rec-number>4856</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921e2dt3p99p0sazsa2dxzve2" timestamp="1501764627">4856</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Human Health Risk Assessment for the Open Burning Ground, Radford Army Ammunition Plant</title></titles><dates><year>2005</year></dates><label>CH2M HILL</label><urls></urls></record></Cite></EndNote>] lb/lb initial source	Ratio EF/RFAAP EF
Nitrocellulose (n=2)	< 51	< 5.1E-05	NV[a]	
1,3,5-Trinitrobenzene [b]	< 1.1	< 1.1E-06	2.28E-05	<0.048
1,3-Dinitrobenzene	< 1.1	< 1.1E-06	8.19E-06	<0.13
2,4,6-Trinitrotoluene	< 1.1	< 1.1E-06	3.48E-05	<0.032
2,4-Dinitrotoluene	< 1.1	< 1.1E-06	1.05E-04	<0.010
2,6-Dinitrotoluene	< 1.1	< 1.1E-06	9.81E-07	<1.1
2-Amino-4,6-Dinitrotoluene	< 1.1	< 1.1E-06	NV[a]	
2-Nitrotoluene	< 1.1	< 1.1E-06	NV[a]	
3,5-DNA	< 1.1	< 1.1E-06	NV[a]	
3-Nitrotoluene	< 1.1	< 1.1E-06	NV[a]	
4-Amino-2,6-Dinitrotoluene	< 1.1	< 1.1E-06	NV[a]	
4-Nitrotoluene	< 1.1	< 1.1E-06	NV[a]	
HMX	< 1.1	< 1.1E-06	2.16E-05	<0.051
Nitrobenzene	< 1.1	< 1.1E-06	3.28E-06	<0.34
Nitroglycerin	< 1.1	< 1.1E-06	3.07E-06	<0.36
PETN	< 2.7	< 2.7E-06	NV[a]	
RDX	< 1.1	< 1.1E-06	NV[a]	

Energetics	MK-90 mg/kg initial source	MK-90 lb/lb initial source	RFAAP EF [ADDIN EN.CITE <EndNote><Cite ExcludeAuth="1"><Year>2005</Year><RecNum>4856</RecNum><DisplayText>[19]</DisplayText><record><rec-number>4856</rec-number><foreign-keys><key app="EN" db-id="0sdewwvzoxf921c2dt3p99p0sazsa2dxzve2" timestamp="1501764627">4856</key></foreign-keys><ref-type name="Report">27</ref-type><contributors></contributors><titles><title>Human Health Risk Assessment for the Open Burning Ground, Radford Army Ammunition Plant</title></titles><dates><year>2005</year></dates><label>CH2M HILL</label><urls></urls></record></Cite></EndNote>] lb/lb initial source	Ratio EF/RFAAP EF
Tetryl	< 1.1	< 1.1E-06	NV[a]	

[a] NV = no value.
[b]Four samples for all energetics except nitrocellulose.

4 Conclusions

Aerial sampling methods for emission quantification of demilitarization efforts have only been comprehensively in use since their first deployment in 2010. The logistical challenges experienced in these earlier efforts and recent developments in UAV and sensor technology prompted EPA's Office of Research and Development to create a new system applicable for sampling open demilitarization plumes. Working with pilots and a hexacopter from NASA Ames, EPA/ORD demonstrated the first comprehensive test of a UAV-borne emission sampler at RFAAP's open burning grounds. Plume sampling of open burns of MK-90 rocket motors and skid waste was successfully accomplished with the UAV/Kolibri system based on the number of plumes sampled (100%), the repeatability of the emission factors, and the comparability of the emission factors with previous aerial sampling methods.

Emissions were sampled for PM, elements including metals, particularly Cr(VI), VOCs, dioxins, and nitroaromatics. $PM_{2.5}$ emission factors for MK-90s were within the range of three other previously-documented sources. The majority of the metal emission factors, 17 of 24, were lower than those emission factors used in the HHRA. Cr(VI) emissions were 28% and 14% of the total Cr emitted from the burns of the MK-90 and skid waste, respectively. Emission factors were compared with other recently sampled, aerial emission data and found to be consistent or, in some cases (for example, HCl) found to be considerably lower. Chlorate and perchlorate emission were below detection limits. Dioxin emissions were less than 0.1% of the emission factor found in the HHRA for skid waste and were similar to those values typically reported from prescribed forest or biomass burns. Residual energetics and nitroaromatics for the MK-90s were below the detection limit. Of the 26 compounds in common between detectable VOC emissions

from Radford's skid waste and the listed HHRA emission factors, 25 of the VOCs were less than the HHRA emission factor.

5 References

[ADDIN EN.REFLIST]

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Appendices

Appendix [SEQ Appendix * ALPHABETIC]: Element emission factors

Table A-1. Elements analyzed for each sample collected in mg/kg initial source.[a]

Element	Unit	Date	MK90 09/27/16 Burn 1	MK90 09/27/16 Burn 2,3	MK90 10/05/16 Burn 1	MK90 10/05/16 Burn 2	MK90 10/05/16 Burn 3	Skid waste 10/06/16 Burn 1	Skid waste 10/06/16 Burn 1
Na	mg/kg initial source		8.58E+02	9.24E+02	1.06E+03	1.05E+03	6.66E+02	2.77E+01	4.32E+01
Na Unc.	mg/kg initial source		1.16E+02	1.37E+02	1.62E+02	1.68E+02	1.32E+02	1.40E+01	1.61E+01
Mg	mg/kg initial source		1.40E+02	1.66E+02	1.96E+02	1.86E+02	1.25E+02	1.91E+00	2.92E+00
Mg Unc.	mg/kg initial source		1.99E+01	2.56E+01	2.89E+01	3.03E+01	2.45E+01	1.29E+00	1.43E+00
Al	mg/kg initial source		1.54E+00	ND	ND	1.33E+01	7.11E+00	ND	ND
Al Unc.	mg/kg initial source		4.13E+00	5.50E+00	6.43E+00	6.72E+00	5.62E+00	6.11E-01	6.50E-01
Si	mg/kg initial source		1.56E+02	1.22E+02	1.66E+02	1.72E+02	1.39E+02	1.90E+01	2.27E+01
Si Unc.	mg/kg initial source		1.02E+01	9.31E+00	1.18E+01	1.21E+01	9.87E+00	1.33E+00	1.52E+00
P	mg/kg initial source		3.82E+00	2.20E+00	4.06E+00	5.93E+00	5.20E+00	4.30E-01	7.16E-01
P Unc.	mg/kg initial source		1.85E+00	2.30E+00	2.89E+00	2.96E+00	2.39E+00	2.41E-01	2.80E-01
S	mg/kg initial source		ND	ND	ND	ND	ND	ND	ND
S Unc.	mg/kg initial source		1.72E+02	1.49E+02	3.99E+01	1.93E+02	3.06E+01	1.76E+00	2.40E+00
Cl	mg/kg initial source		4.38E+01	6.31E+01	8.86E+00	2.46E+01	7.98E+00	7.08E+01	9.00E+01
Cl Unc.	mg/kg initial source		6.64E+00	9.41E+00	6.73E+00	7.07E+00	5.74E+00	3.70E+00	4.69E+00
K	mg/kg initial source		3.34E+01	2.58E+01	2.00E+01	2.58E+01	2.18E+01	4.30E+01	4.38E+01
K Unc.	mg/kg initial source		2.37E+00	2.70E+00	1.83E+00	2.13E+00	1.75E+00	2.23E+00	2.28E+00
Ca	mg/kg initial source		3.74E+01	2.19E+01	2.82E+01	2.96E+01	2.51E+01	2.39E+00	1.96E+00
Ca Unc.	mg/kg initial source		2.42E+00	2.20E+00	2.13E+00	2.13E+00	1.79E+00	2.21E-01	2.22E-01
Ti	mg/kg initial source		1.89E+00	ND	1.61E+00	9.88E-01	1.82E+00	2.48E-01	1.24E-01
Ti Unc.	mg/kg initial source		4.37E-01	6.97E-01	4.64E-01	4.72E-01	4.02E-01	5.34E-02	5.73E-02
V	mg/kg initial source		ND	1.99E-01	3.25E-01	2.36E-01	ND	3.34E-02	ND
V Unc.	mg/kg initial source		4.37E-01	4.98E-01	3.83E-01	4.72E-01	3.32E-01	3.34E-02	4.10E-02
Cr	mg/kg initial source		1.27E+00	4.98E-01	1.47E+00	1.66E+00	1.20E+00	2.67E-02	4.92E-02
Cr Unc.	mg/kg initial source		3.06E-01	5.97E-01	3.25E-01	3.93E-01	2.82E-01	4.01E-02	4.10E-02
Mn	mg/kg initial source		5.25E-01	ND	ND	1.57E-01	ND	ND	ND
Mn Unc.	mg/kg initial source		5.25E-01	9.96E-01	4.10E-01	5.16E-01	3.55E-01	5.34E-02	7.37E-02
Fe	mg/kg initial source		1.62E+01	1.44E+01	1.53E+01	2.15E+01	1.27E+01	8.79E-01	1.89E-01
Fe Unc.	mg/kg initial source		1.14E+00	1.41E+00	9.80E-01	1.34E+00	8.25E-01	9.43E-02	7.37E-02
Co	mg/kg initial source		ND	ND	ND	ND	ND	ND	ND
Co Unc.	mg/kg initial source		3.94E-01	5.97E-01	3.25E-01	3.93E-01	3.08E-01	3.34E-02	4.10E-02

Element	Unit	Date	MK90 09/27/16 Burn 1	MK90 09/27/16 Burn 2,3	MK90 10/05/16 Burn 1	MK90 10/05/16 Burn 2	MK90 10/05/16 Burn 3	Skid waste 10/06/16 Burn 1	Skid waste 10/06/16 Burn 1
Ni	mg/kg initial source		ND	ND	ND	ND	ND	ND	8.19E-03
Ni Unc.	mg/kg initial source		4.37E-01	6.97E-01	3.56E-01	4.32E-01	3.32E-01	3.34E-02	3.28E-02
Cu	mg/kg initial source		2.99E+03	2.55E+03	3.40E+03	3.48E+03	2.95E+03	2.54E+01	9.44E+00
Cu Unc.	mg/kg initial source		1.50E+02	1.27E+02	1.70E+02	1.74E+02	1.47E+02	1.28E+00	4.85E-01
Zn	mg/kg initial source		ND	ND	ND	ND	ND	3.00E+00	1.22E+01
Zn Unc.	mg/kg initial source		5.25E-01	7.97E-01	5.46E-01	6.34E-01	4.73E-01	1.68E-01	6.26E-01
Ga	mg/kg initial source		9.71E+00	5.30E+00	2.70E+00	3.79E+00	ND	ND	ND
Ga Unc.	mg/kg initial source		2.86E+00	3.30E+00	3.05E+00	3.12E+00	2.55E+00	1.94E-01	2.55E-01
Ge	mg/kg initial source		1.08E+01	6.81E+00	1.29E+01	1.12E+01	1.39E+01	4.70E-01	8.48E-01
Ge Unc.	mg/kg initial source		1.14E+00	1.19E+00	1.28E+00	1.30E+00	1.16E+00	6.68E-02	9.83E-02
As	mg/kg initial source		1.35E+01	2.20E+00	2.09E+01	2.27E+01	2.61E+01	1.01E+00	1.90E+00
As Unc.	mg/kg initial source		6.16E+00	6.81E+00	6.95E+00	7.11E+00	5.95E+00	4.09E-01	5.77E-01
Se	mg/kg initial source		ND	ND	ND	1.26E+00	6.14E-01	ND	ND
Se Unc.	mg/kg initial source		1.10E+00	1.19E+00	1.20E+00	1.22E+00	1.02E+00	6.68E-02	9.01E-02
Br	mg/kg initial source		1.49E+01	1.05E+01	1.69E+01	1.61E+01	1.53E+01	1.19E+00	1.87E+00
Br Unc.	mg/kg initial source		1.06E+00	9.96E-01	1.20E+00	1.18E+00	1.06E+00	8.01E-02	1.24E-01
Rb	mg/kg initial source		7.34E+00	8.40E+00	1.02E+01	9.84E+00	6.28E+00	6.44E-01	9.72E-01
Rb Unc	mg/kg initial source		8.80E-01	8.96E-01	1.01E+00	1.03E+00	8.02E-01	6.01E-02	8.19E-02
Sr	mg/kg initial source		1.54E+00	2.00E+00	ND	9.88E-01	2.17E+00	2.67E-02	ND
Sr Unc.	mg/kg initial source		6.18E-01	7.97E-01	7.36E-01	7.13E-01	5.67E-01	4.01E-02	5.73E-02
Y	mg/kg initial source		1.44E+01	7.41E+00	1.26E+01	9.76E+00	9.31E+00	6.11E-01	9.80E-01
Y Unc.	mg/kg initial source		1.80E+00	1.71E+00	1.94E+00	1.90E+00	1.61E+00	1.01E-01	1.48E-01
Zr	mg/kg initial source		ND	ND	ND	ND	ND	ND	ND
Zr Unc.	mg/kg initial source		7.05E-01	9.96E-01	7.63E-01	8.31E-01	6.61E-01	5.34E-02	6.55E-02
Mo	mg/kg initial source		1.14E+00	6.97E-01	5.42E-02	1.34E+00	1.06E+00	3.34E-02	ND
Mo Unc.	mg/kg initial source		7.05E-01	1.19E+00	7.36E-01	8.31E-01	6.37E-01	6.68E-02	8.19E-02
Pd	mg/kg initial source		2.15E+00	9.96E-02	1.36E-01	ND	1.91E+00	8.76E-02	ND
Pd Unc.	mg/kg initial source		1.36E+00	2.50E+00	1.12E+00	1.34E+00	9.46E-01	1.54E-01	1.98E-01
Ag	mg/kg initial source		1.27E+00	ND	ND	ND	ND	ND	2.06E-01
Ag Unc.	mg/kg initial source		1.32E+00	2.50E+00	1.06E+00	1.34E+00	9.22E-01	1.54E-01	1.89E-01
Cd	mg/kg initial source		1.23E+00	3.10E+00	3.27E+00	1.82E+00	5.43E-01	1.94E-01	ND
Cd Unc.	mg/kg initial source		1.32E+00	2.50E+00	1.12E+00	1.34E+00	9.46E-01	1.48E-01	1.89E-01

Element	Unit	Date	MK90 09/27/16 Burn 1	MK90 09/27/16 Burn 2,3	MK90 10/05/16 Burn 1	MK90 10/05/16 Burn 2	MK90 10/05/16 Burn 3	Skid waste 10/06/16 Burn 1	Skid waste 10/06/16 Burn 1
In	mg/kg initial source		2.37E+00	1.71E+00	2.10E+00	1.97E-01	1.98E+00	ND	1.64E-02
In Unc.	mg/kg initial source		1.36E+00	2.70E+00	1.15E+00	1.46E+00	9.69E-01	1.61E-01	2.06E-01
Sn	mg/kg initial source		ND	7.97E-01	7.71E+00	1.66E+00	2.82E-01	8.01E-02	ND
Sn Unc.	mg/kg initial source		1.58E+00	3.30E+00	1.36E+00	1.66E+00	1.11E+00	2.01E-01	2.47E-01
Sb	mg/kg initial source		ND	ND	3.27E+00	ND	1.37E+00	ND	ND
Sb Unc.	mg/kg initial source		1.67E+00	3.50E+00	1.36E+00	1.74E+00	1.18E+00	2.14E-01	2.63E-01
Ba	mg/kg initial source		5.84E+00	8.96E-01	6.68E+00	6.72E+00	6.19E+00	1.94E-01	2.80E-01
Ba Unc.	mg/kg initial source		1.41E+00	2.30E+00	1.55E+00	1.66E+00	1.32E+00	1.48E-01	1.73E-01
La	mg/kg initial source		3.87E+00	1.31E+00	5.53E+00	6.16E+00	4.37E+00	2.00E-02	1.57E-01
La Unc.	mg/kg initial source		9.68E-01	1.31E+00	1.04E+00	1.15E+00	8.72E-01	9.43E-02	1.16E-01
Hg	mg/kg initial source		ND	ND	ND	ND	ND	ND	ND
Hg Unc.	mg/kg initial source		1.80E+00	2.00E+00	2.04E+00	2.01E+00	1.65E+00	1.21E-01	1.65E-01
Pb	mg/kg initial source		1.00E+04	8.77E+03	1.15E+04	1.11E+04	9.57E+03	5.42E+02	8.16E+02
Pb Unc.	mg/kg initial source		5.02E+02	4.39E+02	5.74E+02	5.55E+02	4.79E+02	2.71E+01	4.08E+01

[a] Yellow box with red text = less than three times the uncertainty level. ND = not detected. Unc. = Uncertainty level

1070

Appendix [SEQ Appendix * ALPHABETIC]: PCDD/PCDF emission factors

Table B-1. PCDD/PCDF total emission factors from skid waste.

Homologue	n[a]	Skid Waste -Type 1 Average ng/kg initial source	Stand. Dev.[b]	RSD[b] %	RPD[c] %
TeCDD Total	0	ND[d]			
PeCDD Total	1	0.14			
HxCDD Total	3	1.25	1.33	107	
HpCDD Total	4	3.71	2.07	56	
OCDD	4	8.49	5.32	63	
TeCDF Total	4	25.51	30.19	118	
PeCDF Total	3	8.51	7.30	86	
HxCDF Total	2	0.85			70
HpCDF Total	2	1.26			64
OCDF	4	0.45	0.17	37	
PCDD Total		13.17	8.66	66	
PCDF Total		33.41	37.48	112	
PCDD/PCDF Total		46.58	41.13	88	

[a] Number of samples with detectable levels. [b] Stand. Dev. = standard deviation, RSD = relative standard deviation calculated when n = 3 or more. [c] RPD = relative percent difference, calculated when n=2. [d] ND = not detected.

Table B-2. PCDD/PCDF TEQ emission factors from skid waste, ND = 0.

Homologue	n[a]	Skid Waste -Type 1 Average ND=0 ng TEQ/kg initial source	Stand. Dev.[b]	RSD[b] %	RPD[c] %
2,3,7,8 - TCDD	0	ND			
1,2,3,7,8 - PeCDD	1	0.208			
1,2,3,4,7,8 - HxCDD	0	ND			
1,2,3,6,7,8 - HxCDD	1	0.037			
1,2,3,7,8,9 - HxCDD	1	0.025			
1,2,3,4,6,7,8 - HpCDD	4	0.025	0.015	60	
1,2,3,4,6,7,8,9 - OCDD	4	0.0025	0.0016	64	
2,3,7,8 - TCDF	4	0.371	0.389	105	
1,2,3,7,8 - PeCDF	2	0.045			31
2,3,4,7,8 - PeCDF	3	0.503	0.285	57	
1,2,3,4,7,8 - HxCDF	2	0.024			64
1,2,3,6,7,8 - HxCDF	1	0.017			
1,2,3,7,8,9 - HxCDF	0	ND			
2,3,4,6,7,8 - HxCDF	0	ND			
1,2,3,4,6,7,8 - HpCDF	0	ND			
1,2,3,4,7,8,9 - HpCDF	0	ND			
1,2,3,4,6,7,8,9 - OCDF	3	0.000145	0.000046	31	
PCDD TEQ Total		0.10	0.15	158	
PCDF TEQ Total		0.79	0.71	90	
PCDD/PCDF TEQ Total		0.88	0.79	90	

[a] Number of samples with detectable levels. [b] Stand. Dev. = standard deviation, RSD = relative standard deviation calculated when n = 3 or more. [c] RPD = relative percent difference, calculated when n=2. [d] ND = not detected.

1105

Table B-3. PCDD/PCDF TEQ emission factors from skid waste, ND = LOD.

Homologue	Skid Waste -Type 1 Average ND=LOD[b] ng TEQ/kg initial source	Stand. Dev.[a]	RSD[a] %
2,3,7,8 - TCDD	0.141	0.0591	42
1,2,3,7,8 - PeCDD	0.152	0.0393	26
1,2,3,4,7,8 - HxCDD	0.010	0.00119	12
1,2,3,6,7,8 - HxCDD	0.019	0.0124	65
1,2,3,7,8,9 - HxCDD	0.014	0.00709	49
1,2,3,4,6,7,8 - HpCDD	0.025	0.0152	60
1,2,3,4,6,7,8,9 - OCDD	0.0025	0.00163	64
2,3,7,8 - TCDF	0.371	0.389	105
1,2,3,7,8 - PeCDF	0.025	0.0244	98
2,3,4,7,8 - PeCDF	0.390	0.324	83
1,2,3,4,7,8 - HxCDF	0.017	0.0105	61
1,2,3,6,7,8 - HxCDF	0.013	0.00232	17
1,2,3,7,8,9 - HxCDF	0.014	0.000949	7.0
2,3,4,6,7,8 - HxCDF	0.012	0.000806	6.6
1,2,3,4,6,7,8 - HpCDF	0.0022	0.00132	61
1,2,3,4,7,8,9 - HpCDF	0.0026	0.00158	61
1,2,3,4,6,7,8,9 - OCDF	0.00014	0.000037	26
PCDD TEQ Total	0.36	0.10	27
PCDF TEQ Total	0.85	0.69	81
PCDD/PCDF TEQ Total	1.21	0.69	57

[a] Stand. Dev. = standard deviation, RSD = relative standard deviation. [b] ND = not detected, LOD = limit of detection.

1110

1115

Table B-4. PCDD/PCDF total emission factors from skid waste.

Homologue	n[a]	Skid Waste -Type 1 Average ng/kg waste	Stand. Dev.[b]	RSD[b] %	RPD[c] %
TeCDD Total	0	ND[d]			
PeCDD Total	1	0.28			
HxCDD Total	3	2.51	2.68	107	
HpCDD Total	4	7.45	4.17	56	
OCDD	4	17.06	10.68	63	
TeCDF Total	4	51.25	60.63	118	
PeCDF Total	3	17.10	14.67	86	
HxCDF Total	2	1.71			70
HpCDF Total	2	2.53			64
OCDF	4	0.91	0.34	37	
PCDD Total		26.5	17.4	66	
PCDF Total		67.1	75.3	112	
PCDD/PCDF Total		93.6	82.6	88	

[a] Number of samples with detectable levels. [b] Stand. Dev. = standard deviation, RSD = relative standard deviation calculated when n = 3 or more. [c] RPD = relative percent difference, calculated when n=2. [d] ND = not detected.

Table B-5. PCDD/PCDF TEQ emission factors from skid waste, ND = 0.

Homologue	n[a]	Skid Waste -Type 1 Average ND=0 ng TEQ/kg waste	Stand. Dev.[b]	RSD[b] %	RPD[c] %
2,3,7,8 - TCDD	0	ND			
1,2,3,7,8 - PeCDD	1	0.417			
1,2,3,4,7,8 - HxCDD	0	ND			
1,2,3,6,7,8 - HxCDD	1	0.075			
1,2,3,7,8,9 - HxCDD	1	0.050			
1,2,3,4,6,7,8 - HpCDD	4	0.051	0.030	60	
1,2,3,4,6,7,8,9 - OCDD	4	0.005	0.003	64	
2,3,7,8 - TCDF	4	0.745	0.781	105	
1,2,3,7,8 - PeCDF	2	0.091			31
2,3,4,7,8 - PeCDF	3	1.011	0.572	57	
1,2,3,4,7,8 - HxCDF	2	0.049			64
1,2,3,6,7,8 - HxCDF	1	0.033			
1,2,3,7,8,9 - HxCDF	0	ND			
2,3,4,6,7,8 - HxCDF	0	ND			
1,2,3,4,6,7,8 - HpCDF	0	ND			
1,2,3,4,7,8,9 - HpCDF	0	ND			
1,2,3,4,6,7,8,9 - OCDF	3	0.000291	0.000091	31	
PCDD TEQ Total		0.19	0.30	158	
PCDF TEQ Total		1.58	1.43	90	
PCDD/PCDF TEQ Total		1.77	1.59	90	

[a] Number of samples with detectable levels. [b] Stand. Dev. = standard deviation, RSD = relative standard deviation calculated when n = 3 or more. [c] RPD = relative percent difference, calculated when n=2. [d] ND = not detected.

Table B-6. PCDD/PCDF TEQ emission factors from skid waste, ND = LOD.

Homologue	Skid Waste -Type 1 Average ND=LOD[b] ng TEQ/kg waste	Stand. Dev.[a]	RSD[a] %
2,3,7,8 - TCDD	0.283	0.119	42
1,2,3,7,8 - PeCDD	0.306	0.079	26
1,2,3,4,7,8 - HxCDD	0.020	0.0024	12
1,2,3,6,7,8 - HxCDD	0.038	0.025	65
1,2,3,7,8,9 - HxCDD	0.029	0.014	49
1,2,3,4,6,7,8 - HpCDD	0.051	0.030	60
1,2,3,4,6,7,8,9 - OCDD	0.0051	0.0033	64
2,3,7,8 - TCDF	0.745	0.781	105
1,2,3,7,8 - PeCDF	0.050	0.049	98
2,3,4,7,8 - PeCDF	0.784	0.651	83
1,2,3,4,7,8 - HxCDF	0.034	0.021	61
1,2,3,6,7,8 - HxCDF	0.027	0.0047	17
1,2,3,7,8,9 - HxCDF	0.027	0.0019	7.0
2,3,4,6,7,8 - HxCDF	0.024	0.0016	6.6
1,2,3,4,6,7,8 - HpCDF	0.0043	0.0026	61
1,2,3,4,7,8,9 - HpCDF	0.0052	0.0032	61
1,2,3,4,6,7,8,9 - OCDF	0.00029	0.000075	26
PCDD TEQ Total	0.73	0.20	27
PCDF TEQ Total	1.70	1.38	81
PCDD/PCDF TEQ Total	2.43	1.38	57

[a] Stand. Dev. = standard deviation, RSD = relative standard deviation. [b] ND = not detected, LOD = limit of detection.

Message

From: Olson, Daniel [Olson.Daniel@epa.gov]
Sent: 1/31/2017 2:39:44 PM
To: Burneson, Eric [Burneson.Eric@epa.gov]; Christ, Lisa [Christ.Lisa@epa.gov]; Perkinson, Russ [Perkinson.Russ@epa.gov]
Subject: FW: Greer et al. (2002) perchlorate study

FYI

From: Richard Pleus [mailto:rcpleus@intertox.com]
Sent: Monday, January 30, 2017 5:37 PM
To: Schlosser, Paul <Schlosser.Paul@epa.gov>
Cc: Kapraun, Dustin <Kapraun.Dustin@epa.gov>; Olson, Daniel <Olson.Daniel@epa.gov>; Fisher, Jeffrey <Jeffrey.Fisher@fda.hhs.gov>
Subject: RE: Greer et al. (2002) perchlorate study

Hi Paul,

Can we have a chat on the phone? I am still not clear on what you are needing. I think we can clear that up pretty quickly.

No travel this week. Maybe offer a couple of times that work for you and I will work to make it happen.

Thanks.

Rick

Richard C. Pleus, PhD /Managing Director/ Toxicologist

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INTERTOX, Inc.
SCIENCE STRATEGY RESEARCH

From: Schlosser, Paul [mailto:Schlosser.Paul@epa.gov]
Sent: Friday, January 27, 2017 5:59 AM
To: Richard Pleus <rcpleus@intertox.com>
Cc: Kapraun, Dustin <Kapraun.Dustin@epa.gov>; Olson, Daniel <Olson.Daniel@epa.gov>; Fisher, Jeffrey <Jeffrey.Fisher@fda.hhs.gov>
Subject: RE: Greer et al. (2002) perchlorate study

Hi Rick,

1) We'd like to get the perchlorate PK data, serum levels and 24-hour urine (data shown in Fig. 6 of Merrill et al., 2004, copied below). These are not presented in the paper, but described briefly and shown in Merrill et al. (2004).

   From that paper it also sounds like iodine in 24-hour urine was measured. If there are serum levels of inorganic iodine to go with that, these would be valuable too, for better characterizing the urinary clearance rates of the anions.

   In particular we are looking for ***individual*** subject values, with the matched individual RAIU data. It would be good if we can know corresponding BW values, since blood flows and clearance rates are assumed to scale as BW^0.75, and I'd prefer to use actual BWs vs a default or average value.

2) The purpose is to use formal statistical methods (Merrill et al. did "visual fitting") to estimate uncertainty and inter-individual variability in key model parameters, so that we can then estimate confidence bounds on model predictions. You likely recall from the peer review meeting that there was discomfort and criticism of the fact that we didn't have a better quantitative uncertainty analysis. This will let us estimate the impact of uncertainty/variability in at least the 'front end' of the model, perchlorate dosimetry and iodine uptake by the thyroid, including the effect of perchlorate, and to evaluate its impact on T4 predictions.

3) If the data are available in Excel, that would be great, but if there are only hard-copies/pdfs and we need to enter them, OK. However, in the latter case I'd consider contacting Elaine Merrill, since she would have had to put those data into model scripts and/or spreadsheets for her analysis, to avoid duplicating that effort.

Thanks you!
-Paul

From: Richard Pleus [mailto:rcpleus@intertox.com]
Sent: Thursday, January 26, 2017 7:13 PM
To: Schlosser, Paul <Schlosser.Paul@epa.gov>
Cc: Kapraun, Dustin <Kapraun.Dustin@epa.gov>; Olson, Daniel <Olson.Daniel@epa.gov>; Fisher, Jeffrey <Jeffrey.Fisher@fda.hhs.gov>
Subject: RE: Greer et al. (2002) perchlorate study

Hi Paul,

Quick update. Still checking on a couple of things. It would be helpful to know:

1) What data you need (specific as possible)
2) How are you going to use it
3) What format do you need it? E.g., Excel? Raw data?

There might be a few more questions, but these are the ones at the moment.

Thank you.

Rick

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600 Stewart St., Suite 1101 , SEATTLE, WA 98101
www.intertox.com

INTERTOX, Inc.
SCIENCE STRATEGY RESEARCH

From: Schlosser, Paul [mailto:Schlosser.Paul@epa.gov]
Sent: Tuesday, January 24, 2017 8:34 AM
To: Richard Pleus <rcpleus@intertox.com>
Cc: Kapraun, Dustin <Kapraun.Dustin@epa.gov>; Olson, Daniel <Olson.Daniel@epa.gov>; Fisher, Jeffrey <Jeffrey.Fisher@fda.hhs.gov>
Subject: RE: Greer et al. (2002) perchlorate study

Rick,

That's great news! Thanks for responding so quickly.

-Paul

From: Richard Pleus [mailto:rcpleus@intertox.com]
Sent: Tuesday, January 24, 2017 11:01 AM
To: Schlosser, Paul <Schlosser.Paul@epa.gov>
Cc: Kapraun, Dustin <Kapraun.Dustin@epa.gov>; Olson, Daniel <Olson.Daniel@epa.gov>; Fisher, Jeffrey <Jeffrey.Fisher@fda.hhs.gov>
Subject: RE: Greer et al. (2002) perchlorate study

Dr. Schlosser,

I received your email. We have data. Let me check on permissions.

Rick

Richard C. Pleus, PhD /Managing Director/ Toxicologist

T 206.443.2115
F 206.443.2117

600 Stewart St., Suite 1101 , SEATTLE, WA 98101
www.intertox.com

INTERTOX, Inc.
SCIENCE STRATEGY RESEARCH

From: Schlosser, Paul [mailto:Schlosser.Paul@epa.gov]
Sent: Tuesday, January 24, 2017 7:16 AM

To: Richard Pleus <rcpleus@intertox.com>
Cc: Kapraun, Dustin <Kapraun.Dustin@epa.gov>; Olson, Daniel <Olson.Daniel@epa.gov>; Fisher, Jeffrey <Jeffrey.Fisher@fda.hhs.gov>
Subject: FW: Greer et al. (2002) perchlorate study

Dr. Pleus,
CC: Jeff Fisher, Dan Olson, Dustin Kapraun

I sent the email below last week to Gay Goodman, perhaps a no longer valid email address, since she is listed as corresponding author. I've also tried to find an email address for Monte or Susan Greer, but there's no on-line directory for OHSU that I can find, and all references to them/there look dated. So maybe you can help.

Since Elaine Merrill used the data, as described in the 2005 PBPK paper, she may still have the data files. But I assume we'd need permission to access and use them, given that these are for human subjects.

Thanks,
-Paul Schlosser

From: Schlosser, Paul
Sent: Wednesday, January 18, 2017 10:26 AM
To: 'ggoodman@hhrr.com' <ggoodman@hhrr.com>
Cc: Kapraun, Dustin <Kapraun.Dustin@epa.gov>; Olson, Daniel <Olson.Daniel@epa.gov>; 'Fisher, Jeffrey' <Jeffrey.Fisher@fda.hhs.gov>
Subject: Greer et al. (2002) perchlorate study

Hi Gay,
Cc: Dustin Kapraun, Dan Olson, Jeff Fisher

I hope you are well. ☺

This is now going back 15 years, but we are hoping that the underlying individual data from the Greer et al. (2002) study are still available. You are listed as corresponding author.

We would like to use the data to characterize variability and uncertainty in the Merrill et al. / Clewell et al. PBPK models, and extend that to the more recent ones by Lumen and Fisher and EPA's effort to apply those. Besides the iodide uptake data, there were the perchlorate PK data mentioned in Greer et al. (2002) and used/shown in Merrill et al. (2005), although the later may be less critical in getting at variability in the iodide uptake inhibition.

Since Merrill et al. (2005) made extensive use of those data, I assume that sharing them (without individual identifying information) is generally OK. But are the files in a location and state for easy sharing? Are additional permissions needed?

Thanks,
-Paul

~~~~~~~~~~~~~~~~~~~~~~

Paul M. Schlosser
NCEA, U.S. EPA
M.D. B243-01
RTP, NC 27711
T: 919-541-4130
F: 919-685-3330
E: schlosser.paul@epa.gov
~~~~~~~~~~~~~~~~~~~~~~

Message

From: Flaharty, Stephanie [Flaharty.Stephanie@epa.gov]
Sent: 6/15/2020 9:44:53 PM
To: Hernandez-Quinones, Samuel [Hernandez.Samuel@epa.gov]
CC: Burneson, Eric [Burneson.Eric@epa.gov]; Wadlington, Christina [Wadlington.Christina@epa.gov]
Subject: Reformatted RE: / Corrected: OMB Comments on Perchlorate Notice
Attachments: EO12866_SDWA NPDWR 2040-AF28 FRN Perchlorate Rule 20200615 v2.docx

Hello Sam,

I've corrected the format and the Table of Contents, Section VI subsections to align with the text. I've also replaced "the EPA" with "EPA" in all places, per the new preference for the agency.

Good Luck!
Steph

From: Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Sent: Monday, June 15, 2020 4:10 PM
To: Flaharty, Stephanie <Flaharty.Stephanie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Hi Steph,

Can you take a look at the attached file and let me know if there are any formatting changes that we still need to incorporate? I had taken your comments from a previous version of the document and I had made the necessary changes.

It looks like Eric would like us to make these changes quickly once we get the go ahead from OMB.

Thanks
Sam

==========

Samuel Hernández Quiñones, P.E.
Environmental Engineer
Office of Water
Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, DC 20460
202-564-1735

"USEPA Protecting Human Health and the Environment"

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Monday, June 15, 2020 2:48 PM
To: Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>; Flaharty, Stephanie <Flaharty.Stephanie@epa.gov>
Cc: Christ, Lisa <Christ.Lisa@epa.gov>
Subject: FW: EO12866: OMB Comments on Perchlorate Notice

Sam

Ex. 5 Deliberative Process (DP) We should work to prepare a clean version for loading into ROCIS and to the extent possible work with Stephanie to perform any FRN formatting that is possible while we await OMB's clearance.

Thanks

From: Burneson, Eric
Sent: Monday, June 15, 2020 2:36 PM
To: Dorjets, Vlad EOP/OMB < Ex. 6 Personal Privacy (PP)
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Vlad:
Attached please find a revised FR Notice with responses to comments and edits in response to the Inter Agency Comments. We believe the attached addresses all of the Inter Agency concerns and would like to close out review as soon as possible to facilitate signature and filing of court actions prior to the Consent Decree deadline.

Thank you for your work to facilitate this review. Please let me know if you have any questions

Eric Burneson, P.E.
Director of Standards and Risk Management
Office of Ground Water and Drinking Water
U.S. Environmental Protection Agency
202 564 5250

From: Dorjets, Vlad EOP/OMB [Ex. 6 Personal Privacy (PP)
Sent: Friday, June 12, 2020 11:14 AM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Attached please find some additional comments on the perchlorate notice. I have put them on top of the preliminary set I sent you earlier but highlighted them all in yellow and included "[6/12]" in all of them so you can search on that to find them. Please note that I spoke with USDA and these comments reflect a refined version of their comments below. Let me know if would help to discuss any of this by phone.

From: Dorjets, Vlad EOP/OMB < Ex. 6 Personal Privacy (PP)
Sent: Thursday, June 11, 2020 6:42 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: Re: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

***

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Sent from my iPhone

On Jun 11, 2020, at 6:23 PM, Burneson, Eric <Burneson.Eric@epa.gov> wrote:

Vlad:
Thank you for transmitting the provisional comments yesterday. We do not require a discussion of the comments. We have drafted a passback/response document. Before I ask for senior level EPA review I wanted to check with you to see if any more comments are forthcoming. You noted that the Inter Agency deadline was COB today, but based on recent experience, I am assuming we should wait until tomorrow morning before assuming that there will be no more comments.

Eric Burneson, P.E.
Director of Standards and Risk Management
Office of Ground Water and Drinking Water
U.S. Environmental Protection Agency
202 564 5250

From: Dorjets, Vlad EOP/OMB **Ex. 6 Personal Privacy (PP)**
Sent: Wednesday, June 10, 2020 2:07 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Eric,

Ex. 5 Deliberative Process (DP)

Feel free to give me a call if you want to discuss.

Vlad

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Tuesday, June 9, 2020 5:41 PM
To: Dorjets, Vlad EOP/OMB <Ex. 6 Personal Privacy (PP)
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Vlad;
Attached please find EPA's edits and responses to the consolidated comments received from the Inter Agency Review. We have accepted the majority of recommended edits and have offered alternative language where appropriate.

Ex. 5 Deliberative Process (DP)

We can meet to discuss any questions you have regarding the attached document. Thank you for your coordination and your input on this important action.

Eric Burneson, P.E.
Director of Standards and Risk Management
Office of Ground Water and Drinking Water
U.S. Environmental Protection Agency
202 564 5250

From: Dorjets, Vlad EOP/OMB Ex. 6 Personal Privacy (PP)
Sent: Friday, June 05, 2020 10:07 AM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

We can discuss further later today or next week.

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Friday, June 5, 2020 9:15 AM
To: Dorjets, Vlad EOP/OMB <Ex. 6 Personal Privacy (PP)
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann

<Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

Regarding this afternoon, I am not certain if we need a conversation at this stage as we are still evaluating the comments, but I would like to put a placeholder on your calendar for 3:30 just in case it is needed. I will follow up later this morning to confirm and let you know what if any topics we want to discuss. Does that work?

From: Dorjets, Vlad EOP/OMB [**Ex. 6 Personal Privacy (PP)**
Sent: Friday, June 05, 2020 8:58 AM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Friday, June 5, 2020 8:33 AM
To: Dorjets, Vlad EOP/OMB < **Ex. 6 Personal Privacy (PP)**
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Vlad: We have combined the three comment documents into a single file and will prepare a passback with this combined file. Are you available after the 12866 meeting with AWWA this afternoon in case we have any questions about the comments?

From: Dorjets, Vlad EOP/OMB [**Ex. 6 Personal Privacy (PP)**
Sent: Thursday, June 04, 2020 6:05 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

From: Dorjets, Vlad EOP/OMB
Sent: Thursday, June 4, 2020 5:05 PM
To: 'Burneson, Eric' <Burneson.Eric@epa.gov>
Cc: 'Parikh, Pooja' <Parikh.Pooja@epa.gov>; 'Christ, Lisa' <Christ.Lisa@epa.gov>; 'Johnson, Ann' <Johnson.Ann@epa.gov>; 'Wehling, Carrie' <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

From: Dorjets, Vlad EOP/OMB
Sent: Thursday, June 4, 2020 5:00 PM
To: 'Burneson, Eric' <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: EO12866: OMB Comments on Perchlorate Notice

Eric,

As promised, attached please find OMB's comments on the perchlorate notice. Please don't hesitate to let me know if you have any questions. Especially, if you have any questions / concerns about how to characterize the role that cost benefit analysis played in the Administrator's decision in light of this afternoon's call. I'm sure you can guess where my office would stand on the matter.

Vlad

Appointment

From: Ex. 6 EOP (PP)
Sent: 7/10/2017 6:37:05 PM
To: Ex. 6 DOD (PP) Hafez, Ahmed [Hafez.Ahmed@epa.gov]; Robert.Seifert@EM.Doe.Gov; Strong, Jamie [Strong.Jamie@epa.gov]; Letitia.O'Conor@em.doe.gov; Mclain, Jennifer [Mclain.Jennifer@epa.gov]; Emily.Adamo@em.doe.gov; Grevatt, Peter [Grevatt.Peter@epa.gov]; linda.s.wennerberg@nasa.gov; Burneson, Eric [Burneson.Eric@epa.gov]; tayyaba.waqar@sba.gov; Olson, Daniel [Olson.Daniel@epa.gov]; Ex. 6 DOD (PP) Christ, Lisa [Christ.Lisa@epa.gov]; Ex. 6 DOD (PP) Schwab, Margo EOP/OMB Ex. 6 EOP (PP); Gareth.Buckland@em.doe.gov; Dorjets, Vlad EOP/OMB Ex. 6 EOP (PP); White, Kamela G. EOP/OMB Ex. 6 EOP (PP); Jensen, Sarah [Sarah.Jensen@Hq.Doe.Gov]; Barringer, Jody M. EOP/OMB Ex. 6 EOP (PP); Michael.Dinovi@fda.hhs.gov; Falk Curtin, Edna T. EOP/OMB Ex. 6 EOP (PP); Annie.Lumen@fda.hhs.gov; Suzanne_Fitzpatrick [Suzanne.Fitzpatrick@fda.hhs.gov]; Eileen.Abt@fda.hhs.gov; April.Kluever@fda.hhs.gov; Jeff Fisher [Jeffrey.Fisher@fda.hhs.gov]; Steve.Clark@hq.doe.gov; Beth.Moore@em.doe.gov; Ex. 6 DOD (PP) Ex. 6 DOD (PP) Grossman, Andrea L. EOP/OMB Ex. 6 EOP (PP); kevin.bromberg@sba.gov; Ex. 6 DOD (PP) Gamache, Christopher D. EOP/OMB Ex. 6 EOP (PP); Neumayr, Mary B. EOP/CEQ Ex. 6 EOP (PP); Lee, Jennifer M. EOP/OSTP Ex. 6 EOP (PP); Dorjets, Vlad EOP/OMB Ex. 6 EOP (PP); Ex. 6 EOP (PP)

Subject: FW: Interagency Perchlorate Peer Review Briefing with EPA (rescheduled)
Location: teleconference Ex. 6 Personal Privacy (PP) / access code Ex. 6 Personal Privacy (PP)

Start: 7/18/2017 6:00:00 PM
End: 7/18/2017 7:00:00 PM
Show Time As: Tentative

Recurrence: (none)

-----Original Appointment-----
From: Muellerleile, Caryn [mailto:Muellerleile.Caryn@epa.gov]
Sent: Monday, July 10, 2017 2:01 PM
To: Muellerleile, Caryn; Schwab, Margo EOP/OMB; Ex. 6 DOD (PP) Robert.Seifert@EM.Doe.Gov; Letitia.O'Conor@em.doe.gov; Adamo, Emily (INTERN; linda.s.wennerberg@nasa.gov; tayyaba.waqar@sba.gov; Ex. 6 DOD (PP) Gareth.Buckland@em.doe.gov; Michael.Dinovi@fda.hhs.gov; Annie.Lumen@fda.hhs.gov; Suzanne.Fitzpatrick@fda.hhs.gov; Abt, Eileen; Kluever, April; Jeffrey.Fisher@fda.hhs.gov; Clark, Steve; Moore, Beth; Ex. 6 DOD (PP) Jensen, Sarah; Grossman, Andrea L. EOP/OMB; Lee, Jennifer M. EOP/OSTP; Neumayr, Mary B. EOP/CEQ; Gamache, Christopher D. EOP/OMB; Falk Curtin, Edna T. EOP/OMB; Barringer, Jody M. EOP/OMB; kevin.bromberg@sba.gov; Hafez, Ahmed; Strong, Jamie; Mclain, Jennifer; Grevatt, Peter; Burneson, Eric; Olson, Daniel; Christ, Lisa; Dorjets, Vlad EOP/OMB
Cc: Behl, Betsy; OP ADP Calendar; Nurse, Leanne; Johnson, Ann; Flowers, Lynn; Schlosser, Paul; Huff, Lisa; Forsgren, Lee; Kim, Jim H. EOP/OMB; Morozov, Viktor; Bussard, David; Lavoie, Emma; Ex. 6 DOD (PP) Ex. 6 DOD (PP) Seale, Viktoria Z. EOP/CEQ; Bahadori, Tina; Ex. 6 DOD (PP) Miller, Gregory; Wirtz, Mark S; Gavelek, Alexandra; Buckland, Gareth
Subject: FW: Interagency Perchlorate Peer Review Briefing with EPA (rescheduled)
When: Tuesday, July 18, 2017 2:00 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: teleconference Ex. 6 Personal Privacy (PP) / access code Ex. 6 Personal Privacy (PP)
-----Original Appointment-----
From: Muellerleile, Caryn [mailto:Muellerleile.Caryn@epa.gov]
Sent: Monday, July 10, 2017 2:01 PM
To: Muellerleile, Caryn; Hafez, Ahmed; Strong, Jamie; Mclain, Jennifer; Grevatt, Peter; Burneson,

Eric; Olson, Daniel; Christ, Lisa; Schwab, Margo EOP/OMB; Dorjets, Vlad EOP/OMB
Cc: Behl, Betsy; OP ADP Calendar; Nurse, Leanne; Johnson, Ann; Flowers, Lynn; Schlosser, Paul; Huff, Lisa; Forsgren, Lee; Kim, Jim H. EOP/OMB; Barringer, Jody M. EOP/OMB; Abt, Eileen; Morozov, Viktor; Bussard, David; Lavoie, Emma; Moore, Beth; Ex. 6 DOD (PP) Ex. 6 DOD (PP) Seale, Viktoria Z. EOP/CEQ; Bahadori, Tina; Ex. 6 DOD (PP) Ex. 6 DOD (PP) Kluever, April; Adamo, Emily (INTERN; Ex. 6 DOD (PP) Ex. 6 DOD (PP) Miller, Gregory; kevin.bromberg@sba.gov; Wirtz, Mark S; Gavelek, Alexandra; Buckland, Gareth; Clark, Steve; Neumayr, Mary B. EOP/CEQ
Subject: Interagency Perchlorate Peer Review Briefing with EPA (rescheduled)
When: Tuesday, July 18, 2017 2:00 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: teleconference Ex. 6 Personal Privacy (PP) / access code Ex. 6 Personal Privacy (PP)
Draft agenda:
- Perchlorate BBDR Model Peer Review Outcome
- Reviewers response to charge
- EPA's actions on peer review recommendations
- Overview of Revisions to the BBDR Model
- MCLG Approaches
- Next Steps

EPA's recent model and peer review materials:
>https://www.regulations.gov/docket?D=EPA-HQ-OW-2016-0438<
>https://www.regulations.gov/docket?D=EPA-HQ-OW-2016-0439<
Revised briefing materials to follow.

Message

From: Bromberg, Kevin L. [kevin.bromberg@sba.gov]
Sent: 7/18/2017 4:27:55 PM
To: Muellerleile, Caryn [Muellerleile.Caryn@epa.gov]; Hafez, Ahmed [Hafez.Ahmed@epa.gov]; Strong, Jamie [Strong.Jamie@epa.gov]; Mclain, Jennifer [Mclain.Jennifer@epa.gov]; Grevatt, Peter [Grevatt.Peter@epa.gov]; Burneson, Eric [Burneson.Eric@epa.gov]; Olson, Daniel [Olson.Daniel@epa.gov]; Christ, Lisa [Christ.Lisa@epa.gov]; Margo EOP/OMB [Ex. 6 Personal Privacy (PP)]; Vlad Dorjets [Ex. 6 Personal Privacy (PP)]
CC: Behl, Betsy [Behl.Betsy@epa.gov]; OP ADP Calendar [OP_ADP_Calendar@epa.gov]; Nurse, Leanne [Nurse.Leanne@epa.gov]; Johnson, Ann [Johnson.Ann@epa.gov]; Flowers, Lynn [Flowers.Lynn@epa.gov]; Schlosser, Paul [Schlosser.Paul@epa.gov]; Huff, Lisa [Huff.Lisa@epa.gov]; Forsgren, Lee [Forsgren.Lee@epa.gov]; [Ex. 6 Personal Privacy (PP)] Barringer, Jody M. EOP/OMB [Ex. 6 Personal Privacy (PP)] Abt, Eileen [Eileen.Abt@fda.hhs.gov]; Morozov, Viktor [Morozov.Viktor@epa.gov]; Bussard, David [Bussard.David@epa.gov]; Lavoie, Emma [Lavoie.Emma@epa.gov]; Moore, Beth [Beth.Moore@em.doe.gov]; Seale, Viktoria Z. EOP/CEQ [Ex. 6 Personal Privacy (PP)]; Bahadori, Tina [Bahadori.Tina@epa.gov]; [Ex. 6 DOD (PP)] [Ex. 6 DOD (PP)] Kluever, April [April.Kluever@fda.hhs.gov]; Adamo, Emily (INTERN [Emily.Adamo@em.doe.gov]; [Ex. 6 DOD (PP)] Miller, Gregory [Miller.Gregory@epa.gov]; Wirtz, Mark S [Mark.Wirtz@fda.hhs.gov]; Gavelek, Alexandra [Alexandra.Gavelek@fda.hhs.gov]; Clark, Steve [Steve.Clark@hq.doe.gov]; Kapraun, Dustin [Kapraun.Dustin@epa.gov]; Wennerberg, Linda S. (HQ-LD020) [linda.s.wennerberg@nasa.gov]; Lumen, Annie [Annie.Lumen@fda.hhs.gov]; [Ex. 6 DOD (PP)] [Ex. 6 DOD (PP)] Dinovi, Michael J [Michael.Dinovi@fda.hhs.gov]; Seifert, Robert [Robert.Seifert@EM.Doe.Gov]; Suzanne_Fitzpatrick [Suzanne.Fitzpatrick@fda.hhs.gov]; Evalenko, Sandy [Evalenko.Sandy@epa.gov]; Nasir, Iqra [nasir.iqra@epa.gov]; Smegal, Deborah [Deborah.Smegal@fda.hhs.gov]
Subject: RE: Interagency Perchlorate Peer Review Briefing with EPA (rescheduled)
Attachments: Pleus January 24, 2017 Post Perchlorate Peer Review Meeting Comments (1).pdf

I would be interested in EPA's response to these comments by Dr. Pleus if there is time. These appear quite significant. Also, did the peer reviewers and the Chair ever get to see this document before drafting their peer review comments?

Kevin

-----Original Appointment-----
From: Muellerleile, Caryn [mailto:Muellerleile.Caryn@epa.gov]
Sent: Monday, July 10, 2017 2:01 PM
To: Muellerleile, Caryn; Hafez, Ahmed; Strong, Jamie; Mclain, Jennifer; Grevatt, Peter; Burneson, Eric; Olson, Daniel; Christ, Lisa; Margo EOP/OMB; Vlad Dorjets
Cc: Behl, Betsy; OP ADP Calendar; Nurse, Leanne; Johnson, Ann; Flowers, Lynn; Schlosser, Paul; Huff, Lisa; Forsgren, Lee; James_H_Kim@omb.eop.gov; Barringer, Jody M. EOP/OMB; Abt, Eileen; Morozov, Viktor; Bussard, David; Lavoie, Emma; Moore, Beth; Seale, Viktoria Z. EOP/CEQ; Bahadori, Tina; [Ex. 6 DOD (PP)]; Kluever, April; Adamo, Emily (INTERN; [Ex. 6 DOD (PP)]; Miller, Gregory; Bromberg, Kevin L.; Wirtz, Mark S; Gavelek, Alexandra; Clark, Steve; Kapraun, Dustin; Wennerberg, Linda S. (HQ-LD020); Lumen, Annie; [Ex. 6 DOD (PP)] [Ex. 6 DOD (PP)] Dinovi, Michael J; Seifert, Robert; Suzanne_Fitzpatrick; Evalenko, Sandy; Nasir, Iqra; Smegal, Deborah
Subject: FW: Interagency Perchlorate Peer Review Briefing with EPA (rescheduled)
When: Tuesday, July 18, 2017 2:00 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: teleconference [Ex. 6 Personal Privacy (PP)] / access code [Ex. 6 Personal Privacy (PP)]

I am not sure if this is something you have been involved in previously...

-----Original Appointment-----
From: Muellerleile, Caryn [mailto:Muellerleile.Caryn@epa.gov]
Sent: Monday, July 10, 2017 2:14 PM
To: Muellerleile, Caryn; Anita.K.Meyer@usace.army.mil; patricia.m.underwood.civ@mail.mil; Hafez, Ahmed;

Robert.Seifert@EM.Doe.Gov; Strong, Jamie; Letitia.O'Conor@em.doe.gov; Mclain, Jennifer; Emily.Adamo@em.doe.gov; Grevatt, Peter; linda.s.wennerberg@nasa.gov; Burneson, Eric; Waqar, Tayyaba; Olson, Daniel; Ex. 6 DOD (PP) Christ, Lisa; Ex. 6 DOD (PP) Schwab, Margo EOP/OMB; Gareth.Buckland@em.doe.gov; Dorjets, Vlad EOP/OMB; White, Kamela G. EOP/OMB; Jensen, Sarah; Barringer, Jody M. EOP/OMB; Michael.Dinovi@fda.hhs.gov; Falk Curtin, Edna T. EOP/OMB; Annie.Lumen@fda.hhs.gov; Suzanne.Fitzpatrick@fda.hhs.gov; Eileen.Abt@fda.hhs.gov; April.Kluever@fda.hhs.gov; Jeffrey.Fisher@fda.hhs.gov; Steve.Clark@hq.doe.gov; Beth.Moore@em.doe.gov; Ex. 6 DOD (PP) Grossman, Andrea L. EOP/OMB; Bromberg, Kevin L.; Ex. 6 DOD (PP) Gamache, Christopher D. EOP/OMB; Neumayr, Mary B. EOP/CEQ; Lee, Jennifer M. EOP/OSTP; Kim, Jim H. EOP/OMB
Subject: FW: Interagency Perchlorate Peer Review Briefing with EPA (rescheduled)
When: Tuesday, July 18, 2017 2:00 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: teleconference Ex. 6 Personal Privacy (PP) / access code Ex. 6 Personal Privacy (PP)

-----Original Appointment-----
From: Muellerleile, Caryn [mailto:Muellerleile.Caryn@epa.gov]
Sent: Monday, July 10, 2017 2:01 PM
To: Muellerleile, Caryn; Schwab, Margo EOP/OMB; Ex. 6 DOD (PP) Robert.Seifert@EM.Doe.Gov; Letitia.O'Conor@em.doe.gov; Adamo, Emily (INTERN; linda.s.wennerberg@nasa.gov; tayyaba.waqar@sba.gov; Ex. 6 DOD (PP) Gareth.Buckland@em.doe.gov; Michael.Dinovi@fda.hhs.gov; Annie.Lumen@fda.hhs.gov; Suzanne.Fitzpatrick@fda.hhs.gov; Abt, Eileen; Kluever, April; Jeffrey.Fisher@fda.hhs.gov; Clark, Steve; Moore, Beth; Ex. 6 DOD (PP) Jensen, Sarah; Grossman, Andrea L. EOP/OMB; Lee, Jennifer M. EOP/OSTP; Neumayr, Mary B. EOP/CEQ; Gamache, Christopher D. EOP/OMB; Falk Curtin, Edna T. EOP/OMB; Barringer, Jody M. EOP/OMB; kevin.bromberg@sba.gov; Hafez, Ahmed; Strong, Jamie; Mclain, Jennifer; Grevatt, Peter; Burneson, Eric; Olson, Daniel; Christ, Lisa; Dorjets, Vlad EOP/OMB
Cc: Behl, Betsy; OP ADP Calendar; Nurse, Leanne; Johnson, Ann; Flowers, Lynn; Schlosser, Paul; Huff, Lisa; Forsgren, Lee; Kim, Jim H. EOP/OMB; Morozov, Viktor; Bussard, David; Lavoie, Emma; Ex. 6 DOD (PP) HPW/RHDJ; Seale, Viktoria Z. EOP/CEQ; Bahadori, Tina; Ex. 6 DOD (PP) Gregory; Wirtz, Mark S; Gavelek, Alexandra; Buckland, Gareth
Subject: FW: Interagency Perchlorate Peer Review Briefing with EPA (rescheduled)
When: Tuesday, July 18, 2017 2:00 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).
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-----Original Appointment-----
From: Muellerleile, Caryn [mailto:Muellerleile.Caryn@epa.gov]
Sent: Monday, July 10, 2017 2:01 PM
To: Muellerleile, Caryn; Hafez, Ahmed; Strong, Jamie; Mclain, Jennifer; Grevatt, Peter; Burneson, Eric; Olson, Daniel; Christ, Lisa; Schwab, Margo EOP/OMB; Dorjets, Vlad EOP/OMB
Cc: Behl, Betsy; OP ADP Calendar; Nurse, Leanne; Johnson, Ann; Flowers, Lynn; Schlosser, Paul; Huff, Lisa; Forsgren, Lee; Kim, Jim H. EOP/OMB; Barringer, Jody M. EOP/OMB; Abt, Eileen; Morozov, Viktor; Bussard, David; Lavoie, Emma; Moore, Beth; Ex. 6 DOD (PP) Ex. 6 DOD (PP); Seale, Viktoria Z. EOP/CEQ; Bahadori, Tina; Ex. 6 DOD (PP) Ex. 6 DOD (PP) Ex. 6 DOD (PP) Miller, Gregory; kevin.bromberg@sba.gov; Wirtz, Mark S; Gavelek, Alexandra; Buckland, Gareth; Clark, Steve; Neumayr, Mary B. EOP/CEQ
Subject: Interagency Perchlorate Peer Review Briefing with EPA (rescheduled)
When: Tuesday, July 18, 2017 2:00 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: teleconference Ex. 6 Personal Privacy (PP) / access code Ex. 6 Personal Privacy (PP)

Draft agenda:

- Perchlorate BBDR Model Peer Review Outcome
- Reviewers response to charge
- EPA's actions on peer review recommendations
- Overview of Revisions to the BBDR Model
- MCLG Approaches
- Next Steps

EPA's recent model and peer review materials:
>https://www.regulations.gov/docket?D=EPA-HQ-OW-2016-0438<
>https://www.regulations.gov/docket?D=EPA-HQ-OW-2016-0439<

Revised briefing materials to follow.

Message

From: Wadlington, Christina [Wadlington.Christina@epa.gov]
Sent: 5/14/2020 2:51:56 PM
To: Risley, David [Risley.David@epa.gov]
CC: McLain, Jennifer L. [McLain.Jennifer@epa.gov]; Burneson, Eric [Burneson.Eric@epa.gov]
Subject: RE: NYT request - 12:00 PM DDL
Attachments: Perchlorate Reductions_5.14.20.pdf; Perchlorate Recommendations for PWS_5.14.20.pdf

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

From: Risley, David
Sent: Thursday, May 14, 2020 10:12 AM
To: Wadlington, Christina <Wadlington.Christina@epa.gov>
Cc: McLain, Jennifer L. <McLain.Jennifer@epa.gov>; Burneson, Eric <Burneson.Eric@epa.gov>
Subject: Re: NYT request - 12:00 PM DDL

Sorry, and web posting.

David Risley
EPA Office of Water Communications
Office 202-343-9177
Cell Ex. 6 Personal Privacy (PP)

On May 14, 2020, at 10:10 AM, Risley, David <Risley.David@epa.gov> wrote:

Ex. 5 Deliberative Process (DP)

David Risley
EPA Office of Water Communications
Office 202-343-9177
Cell 202-731-3068

On May 14, 2020, at 10:06 AM, Wadlington, Christina <Wadlington.Christina@epa.gov> wrote:

Ex. 5 Deliberative Process (DP)

From: Risley, David
Sent: Thursday, May 14, 2020 10:00 AM
To: Wadlington, Christina <Wadlington.Christina@epa.gov>
Cc: McLain, Jennifer L. <McLain.Jennifer@epa.gov>; Burneson, Eric

<Burneson.Eric@epa.gov>
Subject: RE: NYT request - 12:00 PM DDL

Here are draft key points for your review:

Ex. 5 Deliberative Process (DP)

David Risley
EPA Office of Water Communications
Office 202-343-9177
Cell Ex. 6 Personal Privacy (PP)

From: Risley, David
Sent: Thursday, May 14, 2020 9:24 AM
To: Wadlington, Christina <Wadlington.Christina@epa.gov>
Cc: McLain, Jennifer L. <Mclain.Jennifer@epa.gov>; Burneson, Eric <Burneson.Eric@epa.gov>
Subject: FW: NYT request - 12:00 PM DDL
Importance: High

Christina,

We are heading toward getting some messaging out on perchlorate today. We've been

Ex. 5 Deliberative Process (DP)

Best,
David

David Risley
EPA Office of Water Communications
Office 202-343-9177
Cell Ex. 6 Personal Privacy (PP)

From: Woods, Andrea <Woods.Andrea@epa.gov>
Sent: Thursday, May 14, 2020 8:04 AM
To: Risley, David <Risley.David@epa.gov>; Drinkard, Andrea <Drinkard.Andrea@epa.gov>
Cc: Schiermeyer, Corry <schiermeyer.corry@epa.gov>
Subject: FW: NYT request - 12:00 PM DDL
Importance: High

Hi David,

Please see the below inquiry from Lisa Friedman. Do we have existing language to respond to any of these questions?

From: Lisa Friedman <lisa.friedman@nytimes.com>
Sent: Thursday, May 14, 2020 7:45 AM
To: Schiermeyer, Corry <schiermeyer.corry@epa.gov>; Woods, Andrea <Woods.Andrea@epa.gov>; Press <Press@epa.gov>
Subject: NYT request

Hi guys hope everyone is well.
I will be writing a story this afternoon saying that EPA intends to not regulate perchlorate in drinking water and will revoke the 2011 finding that perchlorate should be regulated. I'd like to get a comment from the agency and my deadline is noon.
Specifically the story will say, based on sources, that EPA intends to send to the White House a "Notice of Withdrawal of the 2011 Perchlorate Regulatory Determination and Publication of the Final Determination on Perchlorate." As it has been described to me, the notice revokes the 2011 perchlorate finding and justifies that by noting that more more recent analyses show concentrations must be at higher levels than previously thought to be considered unsafe; and that because states like California and Massachusettts are regulating there are now fewer public water systems that contain perchlorate at dangerous levels.
+ Would you be able to confirm that?
+ Can you offer me a comment about why E.P.A. is opting to go this route?
+ What do you say to critics who maintain the agency is making chemical regulatory policies that consistently favor industry over public health?

Secondly, several people have specifically said the policy would set a precedent of allowing for a significant amount of average IQ loss in regulating future chem, since the higher range of 56 ppb for concentration of perchlorate is based on avoiding an average 2 point IQ loss for certain exposed populations.
+ Can you comment on that specifically -- is the EPA no longer considering that level of IQ loss in infants/children an adverse health effect?
+ And finally - EPA has agreed to a consent decree to set a standard by June 2020 -- does this decision mean EPA is not complying with that order?
Thanks very much. I'm at 202-251-2083 if you want to ring me.
Lisa

--
Lisa Friedman
Reporter, New York Times
(202) 862-0306 office
(202) 251-2083 cell

Message

From: Huff, Lisa [Huff.Lisa@epa.gov]
Sent: 7/18/2017 1:36:36 PM
To: Burneson, Eric [Burneson.Eric@epa.gov]
Subject: RE: Interagency Perchlorate Peer Review Briefing with EPA (rescheduled)

Eric,
Can we extend this invitation to other perchlorate team members? For example, Alia was asking if she could have the call in number but can she come to the room and listen? I just wanted to check first.

Thanks,

Lisa Foersom Huff

Associate Branch Chief
Targeting and Analysis Branch
Standards and Risk Management Division
Office of Groundwater and Drinking Water
U.S. EPA
EPA East Bldg. Rm. 2357 H
202-566-0787

From: Burneson, Eric
Sent: Tuesday, July 18, 2017 8:45 AM
To: Muellerleile, Caryn <Muellerleile.Caryn@epa.gov>; Hafez, Ahmed <Hafez.Ahmed@epa.gov>; Strong, Jamie <Strong.Jamie@epa.gov>; Mclain, Jennifer <Mclain.Jennifer@epa.gov>; Grevatt, Peter <Grevatt.Peter@epa.gov>; Olson, Daniel <Olson.Daniel@epa.gov>
Cc: Behl, Betsy <Behl.Betsy@epa.gov>; Nurse, Leanne <Nurse.Leanne@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Flowers, Lynn <Flowers.Lynn@epa.gov>; Schlosser, Paul <Schlosser.Paul@epa.gov>; Huff, Lisa <Huff.Lisa@epa.gov>; Forsgren, Lee <Forsgren.Lee@epa.gov>; Tiago, Joseph <Tiago.Joseph@epa.gov>
Subject: RE: Interagency Perchlorate Peer Review Briefing with EPA (rescheduled)

Those of you who are at EPA HQ are welcome to join us in WJC East Room 2339 for today's call with OMB at 2:00 on perchlorate.

-----Original Appointment-----
From: Muellerleile, Caryn
Sent: Monday, July 10, 2017 2:01 PM
To: Muellerleile, Caryn; Hafez, Ahmed; Strong, Jamie; Mclain, Jennifer; Grevatt, Peter; Burneson, Eric; Olson, Daniel; Christ, Lisa; Margo EOP/OMB; Vlad Dorjets
Cc: Behl, Betsy; OP ADP Calendar; Nurse, Leanne; Johnson, Ann; Flowers, Lynn; Schlosser, Paul; Huff, Lisa; Forsgren, Lee; Ex. 6 EOP (PP) Barringer, Jody M. EOP/OMB; Abt, Eileen; Morozov, Viktor; Bussard, David; Lavoie, Emma; Moore, Beth; Seale, Viktoria Z. EOP/CEQ; Bahadori, Tina; Ex. 6 DOD (PP) Kluever, April; Adamo, Emily Ex. 6 DOD (PP); Miller, Gregory; kevin.bromberg@sba.gov; Wirtz, Mark S; Gavelek, Alexandra; Clark, Steve; Kapraun, Dustin; Wennerberg, Linda S. (HQ-LD020); Lumen, Annie; Ex. 6 DOD (PP) Ex. 6 DOD (PP) Dinovi, Michael J; Seifert, Robert; Suzanne_Fitzpatrick; Evalenko, Sandy; Nasir, Iqra; Smegal, Deborah
Subject: Interagency Perchlorate Peer Review Briefing with EPA (rescheduled)
When: Tuesday, July 18, 2017 2:00 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: teleconference Ex. 6 Personal Privacy (PP) / access code Ex. 6 Personal Privacy (PP)

Draft agenda:

- Perchlorate BBDR Model Peer Review Outcome
  - Reviewers response to charge
  - EPA's actions on peer review recommendations
- Overview of Revisions to the BBDR Model
- MCLG Approaches
- Next Steps

EPA's recent model and peer review materials:
https://www.regulations.gov/docket?D=EPA-HQ-OW-2016-0438
https://www.regulations.gov/docket?D=EPA-HQ-OW-2016-0439

Revised briefing materials to follow.

Message

From: Rodgers-Jenkins, Crystal [Rodgers-Jenkins.Crystal@epa.gov]
Sent: 6/3/2020 9:08:14 PM
To: Burneson, Eric [Burneson.Eric@epa.gov]; Christ, Lisa [Christ.Lisa@epa.gov]
CC: Huff, Lisa [Huff.Lisa@epa.gov]
Subject: RE: FOR REVIEW: draft perchlorate response to comment document
Attachments: Consolidated Perchlorate Draft Comment Response Document.jlm.5-30-2020_cr-j6-3-20.docx

Eric and Lisa,

I reviewed Chapter 8 and completed the redundancy check. Since I was working from a hard copy I was able to type my edits into the version Jennifer sent to us today.

Thanks for the opportunity to review.

@Lisa H., I hope to complete LF RTC on tomorrow.

Take care,
Crystal

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Monday, June 01, 2020 2:24 PM
To: Rodgers-Jenkins, Crystal <Rodgers-Jenkins.Crystal@epa.gov>
Cc: Christ, Lisa <Christ.Lisa@epa.gov>; Huff, Lisa <Huff.Lisa@epa.gov>
Subject: FW: FOR REVIEW: draft perchlorate response to comment document

Crystal and Lisa;
Jennifer spoke with me today about her comments on the perchlorate response to comment document. She has

Ex. 5 Deliberative Process (DP)

From: Christ, Lisa <Christ.Lisa@epa.gov>
Sent: Tuesday, May 19, 2020 6:41 PM
To: McLain, Jennifer L. <McLain.Jennifer@epa.gov>
Cc: Burneson, Eric <Burneson.Eric@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>; Khera, Rajiv <Khera.Rajiv@epa.gov>; Rodgers-Jenkins, Crystal <Rodgers-Jenkins.Crystal@epa.gov>; Huff, Lisa <Huff.Lisa@epa.gov>;

Tiago, Joseph <Tiago.Joseph@epa.gov>
Subject: FOR REVIEW: draft perchlorate response to comment document

DRAFT/DELIBERATIVE
Hello Jennifer,
Attached for your is the draft perchlorate response to comment document. Please let us know if you have questions or concerns.
Thanks,
Lisa

Message

From: Christ, Lisa [Christ.Lisa@epa.gov]
Sent: 3/17/2020 1:47:45 PM
To: Burneson, Eric [Burneson.Eric@epa.gov]; McLain, Jennifer L. [McLain.Jennifer@epa.gov]; Tiago, Joseph [Tiago.Joseph@epa.gov]
CC: Guilaran, Yu-Ting [Guilaran.Yu-Ting@epa.gov]; Wadlington, Christina [Wadlington.Christina@epa.gov]
Subject: RE: EDITS - RE: Revised Perchlorate Briefing Documents - no later than 10am tomorrow
Attachments: Perchlorate Reductions_03.17.2020.v2.docx; Perchlorate Recommendations for PWS_03.17.2020.v2.docx

All – the attached should address the edits/comments received.

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Tuesday, March 17, 2020 9:45 AM
To: McLain, Jennifer L. <McLain.Jennifer@epa.gov>; Tiago, Joseph <Tiago.Joseph@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>
Cc: Guilaran, Yu-Ting <Guilaran.Yu-Ting@epa.gov>; Wadlington, Christina <Wadlington.Christina@epa.gov>
Subject: RE: EDITS - RE: Revised Perchlorate Briefing Documents - no later than 10am tomorrow

Ex. 5 Deliberative Process (DP)

From: McLain, Jennifer L. <McLain.Jennifer@epa.gov>
Sent: Tuesday, March 17, 2020 9:43 AM
To: Burneson, Eric <Burneson.Eric@epa.gov>; Tiago, Joseph <Tiago.Joseph@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>
Cc: Guilaran, Yu-Ting <Guilaran.Yu-Ting@epa.gov>; Wadlington, Christina <Wadlington.Christina@epa.gov>
Subject: RE: EDITS - RE: Revised Perchlorate Briefing Documents - no later than 10am tomorrow

Looks good. Do we need to send the comms plan too? I think that is still in OW.

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Tuesday, March 17, 2020 9:37 AM
To: Tiago, Joseph <Tiago.Joseph@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>
Cc: McLain, Jennifer L. <McLain.Jennifer@epa.gov>; Guilaran, Yu-Ting <Guilaran.Yu-Ting@epa.gov>
Subject: RE: EDITS - RE: Revised Perchlorate Briefing Documents - no later than 10am tomorrow

Joe: While we are waiting for clean versions of the Reductions and Recommendations documents attached are the other perchlorate briefing documents that are not changed by OW comments.

From: Tiago, Joseph <Tiago.Joseph@epa.gov>
Sent: Tuesday, March 17, 2020 9:25 AM
To: Burneson, Eric <Burneson.Eric@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>
Cc: McLain, Jennifer L. <McLain.Jennifer@epa.gov>; Guilaran, Yu-Ting <Guilaran.Yu-Ting@epa.gov>
Subject: RE: EDITS - RE: Revised Perchlorate Briefing Documents - no later than 10am tomorrow

Thanks Eric!

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Tuesday, March 17, 2020 9:08 AM
To: Tiago, Joseph <Tiago.Joseph@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>
Cc: Guilaran, Yu-Ting <Guilaran.Yu-Ting@epa.gov>
Subject: RE: EDITS - RE: Revised Perchlorate Briefing Documents - no later than 10am tomorrow

Thanks Joe. I am reviewing the draft revisions Lisa and Sam prepared. I plan to send a revised in a few minutes.

From: Tiago, Joseph <Tiago.Joseph@epa.gov>
Sent: Monday, March 16, 2020 9:49 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>
Cc: Guilaran, Yu-Ting <Guilaran.Yu-Ting@epa.gov>
Subject: Fwd: EDITS - RE: Revised Perchlorate Briefing Documents - no later than 10am tomorrow

FYI

Joe
(202) 564-0340

Begin forwarded message:

> **From:** "Aguirre, Janita" <Aguirre.Janita@epa.gov>
> **Date:** March 16, 2020 at 8:11:02 PM EDT
> **To:** "McLain, Jennifer L." <Mclain.Jennifer@epa.gov>
> **Cc:** "Tiago, Joseph" <Tiago.Joseph@epa.gov>
> **Subject: RE: EDITS - RE: Revised Perchlorate Briefing Documents - no later than 10am tomorrow**
>
> **Ex. 5 Deliberative Process (DP)**
>
> Thank you,
> Janita
>
> ---
>
> **Janita Aguirre – Special Assistant to David Ross and Anna Wildeman**
> U.S. Environmental Protection Agency | Office of Water | Office of the Assistant Administrator
> Phone: **(202) 566-1149** | Email: **aguirre.janita@epa.gov**
>
> ---
>
> **From:** Aguirre, Janita
> **Sent:** Monday, March 16, 2020 2:49 PM
> **To:** McLain, Jennifer L. <Mclain.Jennifer@epa.gov>
> **Cc:** Tiago, Joseph <Tiago.Joseph@epa.gov>
> **Subject:** EDITS - RE: Revised Perchlorate Briefing Documents
> **Importance:** High
>
> Hi Jennifer,
>
> A few edits from Dave. Please review and confirm. In particular, please address the comment
>
> **Ex. 5 Deliberative Process (DP)**

Ex. 5 Deliberative Process (DP)

This is due tomorrow by noon, so please let me know as soon as the edits are incorporated.

Thank you,
Janita

Janita Aguirre – Special Assistant to David Ross and Anna Wildeman
U.S. Environmental Protection Agency | Office of Water | Office of the Assistant Administrator
Phone: **(202) 566-1149** | Email: aguirre.janita@epa.gov

From: McLain, Jennifer L. <McLain.Jennifer@epa.gov>
Sent: Friday, March 13, 2020 5:34 PM
To: Aguirre, Janita <Aguirre.Janita@epa.gov>
Cc: Tiago, Joseph <Tiago.Joseph@epa.gov>
Subject: FW: Revised Perchlorate Briefing Documents

Janita – your assistance on this is appreciated! Is it possible to provide these revised documents – updated per Dave's input?

Thank you
Jennifer

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Friday, March 13, 2020 5:28 PM
To: McLain, Jennifer L. <McLain.Jennifer@epa.gov>
Cc: Tiago, Joseph <Tiago.Joseph@epa.gov>; Guilaran, Yu-Ting <Guilaran.Yu-Ting@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>
Subject: Revised Perchlorate Briefing Documents

Jennifer:
Attached please find a revised Perchlorate Briefing documents. We had submitted a previous versions of these document for OW review along with the Perchlorate Reductions and Recommendations Documents. We have updated these documents while awaiting further comments from OW. The revisions made to the documents are as follows

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Eric Burneson, P.E.
Director of Standards and Risk Management

Office of Ground Water and Drinking Water
U.S. Environmental Protection Agency
202 564 5250

Message

From: Wadlington, Christina [Wadlington.Christina@epa.gov]
Sent: 5/14/2020 1:53:34 PM
To: Burneson, Eric [Burneson.Eric@epa.gov]; Christ, Lisa [Christ.Lisa@epa.gov]
CC: Darman, Leslie [Darman.Leslie@epa.gov]; Parikh, Pooja [Parikh.Pooja@epa.gov]; Wehling, Carrie [Wehling.Carrie@epa.gov]
Subject: FW: NYT request - 12:00 PM DDL
Attachments: Perchlorate Reductions_03.17.2020 CleanV.docx; Perchlorate Recommendations for PWS_03.18.2020.formatted.4.docx; Perchlorate Filing Comms Plan 4-9-2020.CW.docx

Importance: High

Added #2.

Ex. 5 Deliberative Process (DP)

From: Risley, David
Sent: Thursday, May 14, 2020 9:24 AM
To: Wadlington, Christina <Wadlington.Christina@epa.gov>
Cc: McLain, Jennifer L. <McLain.Jennifer@epa.gov>; Burneson, Eric <Burneson.Eric@epa.gov>
Subject: FW: NYT request - 12:00 PM DDL
Importance: High

Ex. 5 Deliberative Process (DP)

Best,
David

David Risley
EPA Office of Water Communications
Office 202-343-9177
Cell Ex. 6 Personal Privacy (PP)

From: Woods, Andrea <Woods.Andrea@epa.gov>
Sent: Thursday, May 14, 2020 8:04 AM
To: Risley, David <Risley.David@epa.gov>; Drinkard, Andrea <Drinkard.Andrea@epa.gov>
Cc: Schiermeyer, Corry <schiermeyer.corry@epa.gov>
Subject: FW: NYT request - 12:00 PM DDL
Importance: High

Hi David,

Please see the below inquiry from Lisa Friedman. Do we have existing language to respond to any of these questions?

From: Lisa Friedman <lisa.friedman@nytimes.com>
Sent: Thursday, May 14, 2020 7:45 AM
To: Schiermeyer, Corry <schiermeyer.corry@epa.gov>; Woods, Andrea <Woods.Andrea@epa.gov>; Press <Press@epa.gov>
Subject: NYT request

Hi guys hope everyone is well.
I will be writing a story this afternoon saying that EPA intends to not regulate perchlorate in drinking water and will revoke the 2011 finding that perchlorate should be regulated. I'd like to get a comment from the agency and my deadline is noon.
Specifically the story will say, based on sources, that EPA intends to send to the White House a "Notice of Withdrawal of the 2011 Perchlorate Regulatory Determination and Publication of the Final Determination on Perchlorate." As it has been described to me, the notice revokes the 2011 perchlorate finding and justifies that by noting that more more recent analyses show concentrations must be at higher levels than previously thought to be considered unsafe; and that because states like California and Massachusettts are regulating there are now fewer public water systems that contain perchlorate at dangerous levels.
+ Would you be able to confirm that?
+ Can you offer me a comment about why E.P.A. is opting to go this route?
+ What do you say to critics who maintain the agency is making chemical regulatory policies that consistently favor industry over public health?
Secondly, several people have specifically said the policy would set a precedent of allowing for a significant amount of average IQ loss in regulating future chem, since the higher range of 56 ppb for concentration of perchlorate is based on avoiding an average 2 point IQ loss for certain exposed populations.
+ Can you comment on that specifically -- is the EPA no longer considering that level of IQ loss in infants/children an adverse health effect?
+ And finally - EPA has agreed to a consent decree to set a standard by June 2020 -- does this decision mean EPA is not complying with that order?
Thanks very much. I'm at 202-251-2083 if you want to ring me.
Lisa

--
Lisa Friedman
Reporter, New York Times
(202) 862-0306 office
(202) 251-2083 cell

Message

From: Wadlington, Christina [Wadlington.Christina@epa.gov]
Sent: 5/14/2020 1:36:44 PM
To: Burneson, Eric [Burneson.Eric@epa.gov]; Christ, Lisa [Christ.Lisa@epa.gov]
CC: Parikh, Pooja [Parikh.Pooja@epa.gov]; Darman, Leslie [Darman.Leslie@epa.gov]; Wehling, Carrie [Wehling.Carrie@epa.gov]
Subject: FW: NYT request - 12:00 PM DDL
Attachments: Perchlorate Reductions_03.17.2020 CleanV.docx; Perchlorate Recommendations for PWS_03.18.2020.formatted.4.docx

Importance: High

Ex. 6 Personal Privacy (PP)

From: Risley, David
Sent: Thursday, May 14, 2020 9:24 AM
To: Wadlington, Christina <Wadlington.Christina@epa.gov>
Cc: McLain, Jennifer L. <McLain.Jennifer@epa.gov>; Burneson, Eric <Burneson.Eric@epa.gov>
Subject: FW: NYT request - 12:00 PM DDL
Importance: High

Ex. 6 Personal Privacy (PP)

Best,
David

David Risley
EPA Office of Water Communications
Office 202-343-9177
Cell Ex. 6 Personal Privacy (PP)

From: Woods, Andrea <Woods.Andrea@epa.gov>
Sent: Thursday, May 14, 2020 8:04 AM
To: Risley, David <Risley.David@epa.gov>; Drinkard, Andrea <Drinkard.Andrea@epa.gov>
Cc: Schiermeyer, Corry <schiermeyer.corry@epa.gov>
Subject: FW: NYT request - 12:00 PM DDL
Importance: High

Hi David,

Please see the below inquiry from Lisa Friedman. Do we have existing language to respond to any of these questions?

From: Lisa Friedman <lisa.friedman@nytimes.com>
Sent: Thursday, May 14, 2020 7:45 AM
To: Schiermeyer, Corry <schiermeyer.corry@epa.gov>; Woods, Andrea <Woods.Andrea@epa.gov>; Press <Press@epa.gov>
Subject: NYT request

Hi guys hope everyone is well.
I will be writing a story this afternoon saying that EPA intends to not regulate perchlorate in drinking water and will revoke the 2011 finding that perchlorate should be regulated. I'd like to get a comment from the agency and my deadline is noon.
Specifically the story will say, based on sources, that EPA intends to send to the White House a "Notice of Withdrawal of the 2011 Perchlorate Regulatory Determination and Publication of the Final Determination on Perchlorate." As it has been described to me, the notice revokes the 2011 perchlorate finding and justifies that by noting that more more recent analyses show concentrations must be at higher levels than previously thought to be considered unsafe; and that because states like California and Massachusettts are regulating there are now fewer public water systems that contain perchlorate at dangerous levels.
+ Would you be able to confirm that?
+ Can you offer me a comment about why E.P.A. is opting to go this route?
+ What do you say to critics who maintain the agency is making chemical regulatory policies that consistently favor industry over public health?
Secondly, several people have specifically said the policy would set a precedent of allowing for a significant amount of average IQ loss in regulating future chem, since the higher range of 56 ppb for concentration of perchlorate is based on avoiding an average 2 point IQ loss for certain exposed populations.
+ Can you comment on that specifically -- is the EPA no longer considering that level of IQ loss in infants/children an adverse health effect?
+ And finally - EPA has agreed to a consent decree to set a standard by June 2020 -- does this decision mean EPA is not complying with that order?
Thanks very much. I'm at 202-251-2083 if you want to ring me.
Lisa

--

Lisa Friedman
Reporter, New York Times
(202) 862-0306 office
(202) 251-2083 cell

Message

From: Wadlington, Christina [Wadlington.Christina@epa.gov]
Sent: 5/14/2020 3:02:55 PM
To: Risley, David [Risley.David@epa.gov]
CC: McLain, Jennifer L. [McLain.Jennifer@epa.gov]; Burneson, Eric [Burneson.Eric@epa.gov]
Subject: FW: NYT request - 12:00 PM DDL
Attachments: Perchlorate Reductions_5.14.20.pdf; Perchlorate Recommendations for PWS_5.14.20.pdf

Updated, we're good with the PR. Added below for completion.

From: Wadlington, Christina
Sent: Thursday, May 14, 2020 10:52 AM
To: Risley, David <Risley.David@epa.gov>
Cc: McLain, Jennifer L. <Mclain.Jennifer@epa.gov>; Burneson, Eric <Burneson.Eric@epa.gov>
Subject: RE: NYT request - 12:00 PM DDL

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

From: Risley, David
Sent: Thursday, May 14, 2020 10:12 AM
To: Wadlington, Christina <Wadlington.Christina@epa.gov>
Cc: McLain, Jennifer L. <McLain.Jennifer@epa.gov>; Burneson, Eric <Burneson.Eric@epa.gov>
Subject: Re: NYT request - 12:00 PM DDL

Sorry, and web posting.

David Risley
EPA Office of Water Communications
Office 202-343-9177
Cell 202-731-3068

On May 14, 2020, at 10:10 AM, Risley, David <Risley.David@epa.gov> wrote:

Ex. 5 Deliberative Process (DP)

David Risley
EPA Office of Water Communications
Office 202-343-9177
Cell 202-731-3068

On May 14, 2020, at 10:06 AM, Wadlington, Christina <Wadlington.Christina@epa.gov> wrote:

Ex. 5 Deliberative Process (DP)

From: Risley, David
Sent: Thursday, May 14, 2020 10:00 AM
To: Wadlington, Christina <Wadlington.Christina@epa.gov>
Cc: McLain, Jennifer L. <McLain.Jennifer@epa.gov>; Burneson, Eric <Burneson.Eric@epa.gov>
Subject: RE: NYT request - 12:00 PM DDL

Ex. 5 Deliberative Process (DP)

David Risley
EPA Office of Water Communications
Office 202-343-9177
Cell 202-731-3068

From: Risley, David
Sent: Thursday, May 14, 2020 9:24 AM
To: Wadlington, Christina <Wadlington.Christina@epa.gov>
Cc: McLain, Jennifer L. <Mclain.Jennifer@epa.gov>; Burneson, Eric <Burneson.Eric@epa.gov>
Subject: FW: NYT request - 12:00 PM DDL
Importance: High

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Best,
David

David Risley
EPA Office of Water Communications
Office 202-343-9177
Cell 202-731-3068

From: Woods, Andrea <Woods.Andrea@epa.gov>
Sent: Thursday, May 14, 2020 8:04 AM
To: Risley, David <Risley.David@epa.gov>; Drinkard, Andrea <Drinkard.Andrea@epa.gov>
Cc: Schiermeyer, Corry <schiermeyer.corry@epa.gov>
Subject: FW: NYT request - 12:00 PM DDL
Importance: High

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Please see the below inquiry from Lisa Friedman. Do we have existing language to respond to any of these questions?

From: Lisa Friedman <lisa.friedman@nytimes.com>
Sent: Thursday, May 14, 2020 7:45 AM
To: Schiermeyer, Corry <schiermeyer.corry@epa.gov>; Woods, Andrea <Woods.Andrea@epa.gov>; Press <Press@epa.gov>
Subject: NYT request

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+ Would you be able to confirm that?
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regulating future chem, since the higher range of 56 ppb for concentration of perchlorate is based on avoiding an average 2 point IQ loss for certain exposed populations.
+ Can you comment on that specifically -- is the EPA no longer considering that level of IQ loss in infants/children an adverse health effect?
+ And finally - EPA has agreed to a consent decree to set a standard by June 2020 -- does this decision mean EPA is not complying with that order?
Thanks very much. I'm at 202-251-2083 if you want to ring me.
Lisa

--
Lisa Friedman
Reporter, New York Times
(202) 862-0306 office
(202) 251-2083 cell

Message

From: Mclain, Jennifer [Mclain.Jennifer@epa.gov]
Sent: 12/11/2018 10:51:59 PM
To: Christ, Lisa [Christ.Lisa@epa.gov]
CC: Burneson, Eric [Burneson.Eric@epa.gov]; Hernandez-Quinones, Samuel [Hernandez.Samuel@epa.gov]; Khera, Rajiv [Khera.Rajiv@epa.gov]
Subject: RE: Revised Version - Perchlorate FRN
Attachments: Perchlorate Rule FRN 12-7-18 jlm.docx

Lisa,
I am so impressed by the quality of the proposal your team put together. The attached includes my edits and comments/questions. If it would be helpful for you all to sit down and go over some of the later, rather than trying to respond in comment bubbles, I'm happy to do that. I am not as well versed on this information as you all so I may have made edits or comments that are not appropriate. If that is the case, please ignore the edit and don't feel the need to explain why.
Thanks much,
Jennifer

From: Christ, Lisa
Sent: Friday, December 07, 2018 3:16 PM
To: Mclain, Jennifer <Mclain.Jennifer@epa.gov>
Cc: Burneson, Eric <Burneson.Eric@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>; Khera, Rajiv <Khera.Rajiv@epa.gov>
Subject: FW: Revised Version - Perchlorate FRN

Hi Jennifer,
The attached perchlorate proposal addresses my comments and Eric's. We have some additional information we are

Ex. 5 Deliberative Process (DP)

Let us know if you have questions or concerns.

Lisa

From: Hernandez-Quinones, Samuel
Sent: Friday, December 07, 2018 3:10 PM
To: Christ, Lisa <Christ.Lisa@epa.gov>
Subject: Revised Version - Perchlorate FRN

Hi Lisa,

Attached is the revised FRN for Perchlorate.

Thanks

Sam
==========
Samuel Hernández Quiñones, P.E.
Environmental Engineer
Office of Water

Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, DC 20460
202-564-1735

"USEPA Protecting Human Health and the Environment"

Appointment

From: Burneson, Eric [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=2cacb9a8d49f49af80531e9e2ccb9018-eburneso]
Sent: 6/10/2020 7:29:40 PM
To: Christ, Lisa [Christ.Lisa@epa.gov]; Hernandez-Quinones, Samuel [Hernandez.Samuel@epa.gov]; Khera, Rajiv [Khera.Rajiv@epa.gov]
CC: Parikh, Pooja [Parikh.Pooja@epa.gov]; Johnson, Ann [Johnson.Ann@epa.gov]; Wehling, Carrie [Wehling.Carrie@epa.gov]; McLain, Jennifer L. [Mclain.Jennifer@epa.gov]

Subject: EO12866: OMB Comments on Perchlorate Notice
Location: Microsoft Teams Meeting

Start: 6/10/2020 8:30:00 PM
End: 6/10/2020 9:00:00 PM
Show Time As: Tentative

Lisa, Sam and Rajiv: Can we have a conversation at 4:30 to discuss what issues remain and how to resolve? Others are welcome to join as available.

Join Microsoft Teams Meeting

Ex. 6 Personal Privacy (PP)

Local numbers | Reset PIN | Learn more about Teams | Meeting options
By participating in EPA hosted virtual meetings and events, you are consenting to abide by the agency's terms of use. In addition, you acknowledge that content you post may be collected and used in support of FOIA and eDiscovery activities.

From: Christ, Lisa
Sent: Wednesday, June 10, 2020 2:42 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Eric,
WE can add this to the SharePoint site so everyone has access.
Lisa

From: Dorjets, Vlad EOP/OMB <**Ex. 6 Personal Privacy (PP)**
Sent: Wednesday, June 10, 2020 2:07 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>;

Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

Feel free to give me a call if you want to discuss.

Vlad

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Tuesday, June 9, 2020 5:41 PM
To: Dorjets, Vlad EOP/OMB <Ex. 6 Personal Privacy (PP)
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Vlad;
Attached please find EPA's edits and responses to the consolidated comments received from the Inter Agency Review. We have accepted the majority of recommended edits and have offered alternative language where appropriate.

Ex. 5 Deliberative Process (DP)

We can meet to discuss any questions you have regarding the attached document. Thank you for your coordination and your input on this important action.

Eric Burneson, P.E.
Director of Standards and Risk Management
Office of Ground Water and Drinking Water
U.S. Environmental Protection Agency
202 564 5250

From: Dorjets, Vlad EOP/OMB [Ex. 6 Personal Privacy (PP)
Sent: Friday, June 05, 2020 10:07 AM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>;

Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Friday, June 5, 2020 9:15 AM
To: Dorjets, Vlad EOP/OMB < **Ex. 6 Personal Privacy (PP)**
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

From: Dorjets, Vlad EOP/OMB [**Ex. 6 Personal Privacy (PP)**
Sent: Friday, June 05, 2020 8:58 AM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

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To: Dorjets, Vlad EOP/OMB < **Ex. 6 Personal Privacy (PP)**

Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Vlad: We have combined the three comment documents into a single file and will prepare a passback with this combined file. Are you available after the 12866 meeting with AWWA this afternoon in case we have any questions about the comments?

From: Dorjets, Vlad EOP/OMB **Ex. 6 Personal Privacy (PP)**
Sent: Thursday, June 04, 2020 6:05 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

From: Dorjets, Vlad EOP/OMB
Sent: Thursday, June 4, 2020 5:05 PM
To: 'Burneson, Eric' <Burneson.Eric@epa.gov>
Cc: 'Parikh, Pooja' <Parikh.Pooja@epa.gov>; 'Christ, Lisa' <Christ.Lisa@epa.gov>; 'Johnson, Ann' <Johnson.Ann@epa.gov>; 'Wehling, Carrie' <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

From: Dorjets, Vlad EOP/OMB
Sent: Thursday, June 4, 2020 5:00 PM
To: 'Burneson, Eric' <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: EO12866: OMB Comments on Perchlorate Notice

Eric,

Ex. 5 Deliberative Process (DP)

Vlad

Message

From: Burneson, Eric [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=2CACB9A8D49F49AF80531E9E2CCB9018-EBURNESO]
Sent: 6/10/2020 7:00:35 PM
To: McLain, Jennifer L. [Mclain.Jennifer@epa.gov]
Subject: FW: EO12866: OMB Comments on Perchlorate Notice
Attachments: EO12866 EPA Perchlorate Rule (OMB 06-10-20 Prelim).docx

From: Dorjets, Vlad EOP/OMB [Ex. 6 Personal Privacy (PP)
Sent: Wednesday, June 10, 2020 2:07 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

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Vlad

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Subject: RE: EO12866: OMB Comments on Perchlorate Notice

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Director of Standards and Risk Management
Office of Ground Water and Drinking Water
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202 564 5250

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Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
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Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
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To: 'Burneson, Eric' <Burneson.Eric@epa.gov>
Cc: 'Parikh, Pooja' <Parikh.Pooja@epa.gov>; 'Christ, Lisa' <Christ.Lisa@epa.gov>; 'Johnson, Ann' <Johnson.Ann@epa.gov>; 'Wehling, Carrie' <Wehling.Carrie@epa.gov>
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Subject: EO12866: OMB Comments on Perchlorate Notice

Eric,

Ex. 5 Deliberative Process (DP)

Message

From: Burneson, Eric [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=2CACB9A8D49F49AF80531E9E2CCB9018-EBURNESO]
Sent: 6/15/2020 6:45:22 PM
To: McLain, Jennifer L. [Mclain.Jennifer@epa.gov]
Subject: FW: EO12866: OMB Comments on Perchlorate Notice

FYI

From: Dorjets, Vlad EOP/OMB [Ex. 6 Personal Privacy (PP)]
Sent: Monday, June 15, 2020 2:41 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Received, thanks. I'll circulate and start reviewing right away.

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Monday, June 15, 2020 2:36 PM
To: Dorjets, Vlad EOP/OMB <Ex. 6 Personal Privacy (PP)>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Vlad:
Attached please find a revised FR Notice with responses to comments and edits in response to the Inter Agency Comments. We believe the attached addresses all of the Inter Agency concerns and would like to close out review as soon as possible to facilitate signature and filing of court actions prior to the Consent Decree deadline.

Thank you for your work to facilitate this review. Please let me know if you have any questions

Eric Burneson, P.E.
Director of Standards and Risk Management
Office of Ground Water and Drinking Water
U.S. Environmental Protection Agency
202 564 5250

From: Dorjets, Vlad EOP/OMB [Ex. 6 Personal Privacy (PP)]
Sent: Friday, June 12, 2020 11:14 AM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Attached please find some additional comments on the perchlorate notice. I have put them on top of the preliminary set I sent you earlier but highlighted them all in yellow and included "[6/12]" in all of them so you can search on that to find

Ex. 5 Deliberative Process (DP)

From: Dorjets, Vlad EOP/OMB <Ex. 6 Personal Privacy (PP)
Sent: Thursday, June 11, 2020 6:42 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: Re: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Sent from my iPhone

On Jun 11, 2020, at 6:23 PM, Burneson, Eric <Burneson.Eric@epa.gov> wrote:

Ex. 5 Deliberative Process (DP)

Eric Burneson, P.E.
Director of Standards and Risk Management
Office of Ground Water and Drinking Water
U.S. Environmental Protection Agency
202 564 5250

From: Dorjets, Vlad EOP/OMB [Ex. 6 Personal Privacy (PP)]
Sent: Wednesday, June 10, 2020 2:07 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Eric,

Ex. 5 Deliberative Process (DP)

Feel free to give me a call if you want to discuss.

Vlad

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Tuesday, June 9, 2020 5:41 PM
To: Dorjets, Vlad EOP/OMB <Ex. 6 Personal Privacy (PP)
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

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Attached please find EPA's edits and responses to the consolidated comments received from the Inter Agency Review. We have accepted the majority of recommended edits and have offered alternative language where appropriate.

Ex. 5 Deliberative Process (DP)

We can meet to discuss any questions you have regarding the attached document. Thank you for your coordination and your input on this important action.

Eric Burneson, P.E.
Director of Standards and Risk Management
Office of Ground Water and Drinking Water
U.S. Environmental Protection Agency
202 564 5250

From: Dorjets, Vlad EOP/OMB [Ex. 6 Personal Privacy (PP)
Sent: Friday, June 05, 2020 10:07 AM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann

<Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
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Subject: EO12866: OMB Comments on Perchlorate Notice

Eric,

Ex. 5 Deliberative Process (DP)

Vlad

Message

From: Burneson, Eric [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=2CACB9A8D49F49AF80531E9E2CCB9018-EBURNESO]
Sent: 6/15/2020 6:39:20 PM
To: Johnson, Ann [Johnson.Ann@epa.gov]
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Yes

From: Johnson, Ann
Sent: Monday, June 15, 2020 2:39 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Monday, June 15, 2020 2:36 PM
To: Dorjets, Vlad EOP/OMB <**Ex. 6 Personal Privacy (PP)**
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Vlad:
Attached please find a revised FR Notice with responses to comments and edits in response to the Inter Agency Comments. We believe the attached addresses all of the Inter Agency concerns and would like to close out review as soon as possible to facilitate signature and filing of court actions prior to the Consent Decree deadline.

Thank you for your work to facilitate this review. Please let me know if you have any questions

Eric Burneson, P.E.
Director of Standards and Risk Management
Office of Ground Water and Drinking Water
U.S. Environmental Protection Agency
202 564 5250

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Sent: Friday, June 12, 2020 11:14 AM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
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Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Sent from my iPhone

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Sent: 7/18/2017 4:47:14 PM
To: Olson, Daniel [Olson.Daniel@epa.gov]; Huff, Lisa [Huff.Lisa@epa.gov]; Hafez, Ahmed [Hafez.Ahmed@epa.gov]
Subject: FW: Interagency Perchlorate Peer Review Briefing with EPA (rescheduled)
Attachments: Pleus January 24, 2017 Post Perchlorate Peer Review Meeting Comments (1).pdf

Could you please forward the Intertox comments received and reviewed by the peer reviewer?

From: Bromberg, Kevin L. [mailto:kevin.bromberg@sba.gov]
Sent: Tuesday, July 18, 2017 12:28 PM
To: Muellerleile, Caryn <Muellerleile.Caryn@epa.gov>; Hafez, Ahmed <Hafez.Ahmed@epa.gov>; Strong, Jamie <Strong.Jamie@epa.gov>; Mclain, Jennifer <Mclain.Jennifer@epa.gov>; Grevatt, Peter <Grevatt.Peter@epa.gov>; Burneson, Eric <Burneson.Eric@epa.gov>; Olson, Daniel <Olson.Daniel@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Margo EOP/OMB <Ex. 6 EOP (PP)>; Vlad Dorjets <Ex. 6 EOP (PP)>
Cc: Behl, Betsy <Behl.Betsy@epa.gov>; OP ADP Calendar <OP_ADP_Calendar@epa.gov>; Nurse, Leanne <Nurse.Leanne@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Flowers, Lynn <Flowers.Lynn@epa.gov>; Schlosser, Paul <Schlosser.Paul@epa.gov>; Huff, Lisa <Huff.Lisa@epa.gov>; Forsgren, Lee <Forsgren.Lee@epa.gov>; Ex. 6 EOP (PP); Barringer, Jody M. EOP/OMB <Ex. 6 EOP (PP)>; Abt, Eileen <Eileen.Abt@fda.hhs.gov>; Morozov, Viktor <Morozov.Viktor@epa.gov>; Bussard, David <Bussard.David@epa.gov>; Lavoie, Emma <Lavoie.Emma@epa.gov>; Moore, Beth <Beth.Moore@em.doe.gov>; Seale, Viktoria Z. EOP/CEQ Ex. 6 EOP (PP); Bahadori, Tina <Bahadori.Tina@epa.gov>; Ex. 6 Personal Privacy (PP) Ex. 6 Personal Privacy (PP) Kluever, April <April.Kluever@fda.hhs.gov>; Adamo, Emily (INTERN <Emily.Adamo@em.doe.gov>; Ex. 6 Personal Privacy (PP) Miller, Gregory <Miller.Gregory@epa.gov>; Wirtz, Mark S <Mark.Wirtz@fda.hhs.gov>; Gavelek, Alexandra <Alexandra.Gavelek@fda.hhs.gov>; Clark, Steve <Steve.Clark@hq.doe.gov>; Kapraun, Dustin <Kapraun.Dustin@epa.gov>; Wennerberg, Linda S. (HQ-LD020) <linda.s.wennerberg@nasa.gov>; Lumen, Annie <Annie.Lumen@fda.hhs.gov>; Ex. 6 Personal Privacy (PP) Ex. 6 Personal Privacy (PP) Dinovi, Michael J <Michael.Dinovi@fda.hhs.gov>; Seifert, Robert <Robert.Seifert@EM.Doe.Gov>; Suzanne_Fitzpatrick <Suzanne.Fitzpatrick@fda.hhs.gov>; Evalenko, Sandy <Evalenko.Sandy@epa.gov>; Nasir, Iqra <nasir.iqra@epa.gov>; Smegal, Deborah <Deborah.Smegal@fda.hhs.gov>
Subject: RE: Interagency Perchlorate Peer Review Briefing with EPA (rescheduled)

I would be interested in EPA's response to these comments by Dr. Pleus if there is time. These appear quite significant. Also, did the peer reviewers and the Chair ever get to see this document before drafting their peer review comments?

Kevin

-----Original Appointment-----
From: Muellerleile, Caryn [mailto:Muellerleile.Caryn@epa.gov]
Sent: Monday, July 10, 2017 2:01 PM
To: Muellerleile, Caryn; Hafez, Ahmed; Strong, Jamie; Mclain, Jennifer; Grevatt, Peter; Burneson, Eric; Olson, Daniel; Christ, Lisa; Margo EOP/OMB; Vlad Dorjets
Cc: Behl, Betsy; OP ADP Calendar; Nurse, Leanne; Johnson, Ann; Flowers, Lynn; Schlosser, Paul; Huff, Lisa; Forsgren, Lee; Ex. 6 Personal Privacy (PP) Barringer, Jody M. EOP/OMB; Abt, Eileen; Morozov, Viktor; Bussard, David; Lavoie, Emma; Moore, Beth; Seale, Viktoria Z. EOP/CEQ; Bahadori, Tina; Ex. 6 Personal Privacy (PP); Kluever, April; Adamo, Emily (INTERN); Ex. 6 Personal Privacy (PP); Miller, Gregory; Bromberg, Kevin L.; Wirtz, Mark S; Gavelek, Alexandra; Clark, Steve; Kapraun, Dustin; Wennerberg, Linda S. (HQ-LD020); Lumen, Annie; Ex. 6 Personal Privacy (PP) Ex. 6 Personal Privacy (PP); Dinovi, Michael J; Seifert, Robert; Suzanne_Fitzpatrick; Evalenko, Sandy; Nasir, Iqra; Smegal, Deborah
Subject: FW: Interagency Perchlorate Peer Review Briefing with EPA (rescheduled)

When: Tuesday, July 18, 2017 2:00 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: teleconference Ex. 6 Personal Privacy (PP) / access code Ex. 6 Personal Privacy (PP)

I am not sure if this is something you have been involved in previously...

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Draft agenda:

- Perchlorate BBDR Model Peer Review Outcome
- Reviewers response to charge
- EPA's actions on peer review recommendations
- Overview of Revisions to the BBDR Model
- MCLG Approaches
- Next Steps

EPA's recent model and peer review materials:
>https://www.regulations.gov/docket?D=EPA-HQ-OW-2016-0438<
>https://www.regulations.gov/docket?D=EPA-HQ-OW-2016-0439<

Revised briefing materials to follow.

Message

From: Burneson, Eric [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=2CACB9A8D49F49AF80531E9E2CCB9018-EBURNESO]
Sent: 6/12/2020 12:31:11 PM
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Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Vlad;
Attached please find EPA's edits and responses to the consolidated comments received from the Inter Agency Review. We have accepted the majority of recommended edits and have offered alternative language where appropriate.

Ex. 5 Deliberative Process (DP)

We can meet to discuss any questions you have regarding the attached document. Thank you for your coordination and your input on this important action.

Eric Burneson, P.E.
Director of Standards and Risk Management
Office of Ground Water and Drinking Water
U.S. Environmental Protection Agency
202 564 5250

From: Dorjets, Vlad EOP/OMB [Ex. 6 Personal Privacy (PP)]
Sent: Friday, June 05, 2020 10:07 AM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
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Ex. 5 Deliberative Process (DP)

enough time, I'm completely free after 3:00 meeting so would be happy pick think up at, say, 3:30 or 4:00.

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Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
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Subject: EO12866: OMB Comments on Perchlorate Notice

Eric,

Ex. 5 Deliberative Process (DP)

Vlad

Message

From: Burneson, Eric [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=2CACB9A8D49F49AF80531E9E2CCB9018-EBURNESO]
Sent: 6/16/2020 2:07:50 PM
To: McLain, Jennifer L. [Mclain.Jennifer@epa.gov]
Subject: FW: EO12866: OMB Comments on Perchlorate Notice

From: Dorjets, Vlad EOP/OMB [**Ex. 6 Personal Privacy (PP)**
Sent: Tuesday, June 16, 2020 9:22 AM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Eric,

Ex. 5 Deliberative Process (DP)

Vlad

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Monday, June 15, 2020 2:36 PM
To: Dorjets, Vlad EOP/OMB <[**Ex. 6 Personal Privacy (PP)**
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Vlad:

Ex. 5 Deliberative Process (DP)

Thank you for your work to facilitate this review. Please let me know if you have any questions

Eric Burneson, P.E.
Director of Standards and Risk Management
Office of Ground Water and Drinking Water
U.S. Environmental Protection Agency
202 564 5250

From: Dorjets, Vlad EOP/OMB [Ex. 6 Personal Privacy (PP)
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Subject: Re: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Sent from my iPhone

On Jun 11, 2020, at 6:23 PM, Burneson, Eric <Burneson.Eric@epa.gov> wrote:

Vlad:

Ex. 5 Deliberative Process (DP)

Eric Burneson, P.E.
Director of Standards and Risk Management
Office of Ground Water and Drinking Water
U.S. Environmental Protection Agency
202 564 5250

From: Dorjets, Vlad EOP/OMB [Ex. 6 Personal Privacy (PP)]
Sent: Wednesday, June 10, 2020 2:07 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
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Eric,

Ex. 5 Deliberative Process (DP)

Feel free to give me a call if you want to discuss.

Vlad

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Eric Burneson, P.E.
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202 564 5250

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<Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: EO12866: OMB Comments on Perchlorate Notice

Eric,

Ex. 5 Deliberative Process (DP)

Vlad

Message

From: Burneson, Eric [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=2CACB9A8D49F49AF80531E9E2CCB9018-EBURNESO]
Sent: 5/21/2019 4:14:10 AM
To: Christ, Lisa [Christ.Lisa@epa.gov]; Huff, Lisa [Huff.Lisa@epa.gov]; Hernandez-Quinones, Samuel [hernandez.samuel@epa.gov]; Khera, Rajiv [Khera.Rajiv@epa.gov]
CC: Messier, Dawn [Messier.Dawn@epa.gov]
Subject: FW: OMB Comments on Revised Perchlorate MCL Docs
Attachments: EPA Responses to EO12886 Comments - FRN Perchlorate NPDWR 5-15-19 (OMB 05-20-19).jlm.docx

Also attached for discussion at the 8:30 meeting are Jennifer's preliminary concerns as well

From: Mclain, Jennifer
Sent: Monday, May 20, 2019 10:55 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Guilaran, Yu-Ting <Guilaran.Yu-Ting@epa.gov>; Tiago, Joseph <Tiago.Joseph@epa.gov>
Subject: RE: OMB Comments on Revised Perchlorate MCL Docs

Ex. 5 Deliberative Process (DP)

Let me know if you want to discuss.

Jennifer

Deliberative/internal

From: Burneson, Eric
Sent: Monday, May 20, 2019 7:53 PM
To: Christ, Lisa <Christ.Lisa@epa.gov>; Huff, Lisa <Huff.Lisa@epa.gov>; Khera, Rajiv <Khera.Rajiv@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>; Messier, Dawn <Messier.Dawn@epa.gov>; Mclain, Jennifer <Mclain.Jennifer@epa.gov>
Subject: Fwd: OMB Comments on Revised Perchlorate MCL Docs

Sent from my iPhone

Begin forwarded message:

From: "Dorjets, Vlad EOP/OMB" **Ex. 6 Personal Privacy (PP)**
Date: May 20, 2019 at 7:03:24 PM EDT

To: "Burneson, Eric" <Burneson.Eric@epa.gov>
Cc: "Nickerson, William" <Nickerson.William@epa.gov>
Subject: OMB Comments on Revised Perchlorate MCL Docs

Eric,

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Vlad

Message

From: Hernandez-Quinones, Samuel [Hernandez.Samuel@epa.gov]
Sent: 4/29/2019 3:57:19 PM
To: Christ, Lisa [Christ.Lisa@epa.gov]
Subject: RE: Missing Citation in Perchlorate NPRM

I am looking for these now. I will let you know soon if we have them.

Thanks
Sam

==========
Samuel Hernández Quiñones, P.E.
Environmental Engineer
Office of Water
Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, DC 20460
202-564-1735

"USEPA Protecting Human Health and the Environment"

-----Original Message-----
From: Christ, Lisa
Sent: Monday, April 29, 2019 11:45 AM
To: Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: FW: Missing Citation in Perchlorate NPRM
Importance: High

Hi Sam,
Please provide the papers requested below. Hopefully they can be easily accessed?
Thanks,
Lisa

-----Original Message-----
From: Dorjets, Vlad EOP/OMB Ex. 6 Personal Privacy (PP)
Sent: Monday, April 29, 2019 11:18 AM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Christ, Lisa <Christ.Lisa@epa.gov>
Subject: FW: Missing Citation in Perchlorate NPRM

Eric - See request below for three academic studies on IQ referenced in the NPRM. Could you please send me the papers when you can? Thanks.

-----Original Message-----
From: Ex. 6 Personal Privacy (PP)
Sent: Monday, April 29, 2019 9:55 AM
To: Dorjets, Vlad EOP/OMB
Cc: Schwab, Margo EOP/OMB Ex. 6 Personal Privacy (PP) Ex. 6 Personal Privacy (PP) Ex. 6 Personal Privacy (PP)
Subject: Missing Citation in Perchlorate NPRM

In Section 10 where EPA describes meaningful IQ differences there are 3 citations missing. At this late point instead of just asking for the citations we are requesting EPA send us electronic copies of the papers, hopefully this is possible.
Would you please ask them to forward the following?
Bellinger (2004)
Rogan and Ware (2003)
Nation and Gleaves (2001)

Message

From: Burneson, Eric [Burneson.Eric@epa.gov]
Sent: 6/12/2020 5:21:16 PM
To: Christ, Lisa [Christ.Lisa@epa.gov]
CC: Khera, Rajiv [Khera.Rajiv@epa.gov]; Hernandez-Quinones, Samuel [Hernandez.Samuel@epa.gov]
Subject: FW: EO12866: OMB Comments on Perchlorate Notice
Attachments: EO12866 EPA Perchlorate Rule (OMB 06-12-20).docx

Is it possible to consolidate the new comments with the work we already did to respond to the previous comments?

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Subject: Re: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

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Sent from my iPhone

On Jun 11, 2020, at 6:23 PM, Burneson, Eric <Burneson.Eric@epa.gov> wrote:

Vlad:

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Eric Burneson, P.E.
Director of Standards and Risk Management
Office of Ground Water and Drinking Water
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Eric,

Ex. 5 Deliberative Process (DP)

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Subject: EO12866: OMB Comments on Perchlorate Notice

Eric,

Ex. 5 Deliberative Process (DP)

Vlad

Message

From: Wennerberg, Linda S. (HQ-LD020) [linda.s.wennerberg@nasa.gov]
Sent: 7/19/2017 5:08:02 PM
To: Beck, Nancy [Beck.Nancy@epa.gov]; Forsgren, Lee [Forsgren.Lee@epa.gov]
CC: Davis, Patrick [davis.patrick@epa.gov]
Subject: RE: Perchlorate

Nancy
Thanks so much for the introduction.

Lee
I welcome talking with you about this. And Nancy is correct, I have been working perchlorate so long that it is almost old enough to vote.....

My issue now is the interagency review process. Please let me know if you have some time Friday morning or later afternoon or early next week to touch base by phone. Sadly today and tomorrow are already jammed.

Many thanks.

Linda

Linda S. Wennerberg, Ph.D.
Environmental Management Division
NASA Headquarters
MS-2T89
300 E Street SW
Washington, DC 20546-0001

Tel: 202/358-4558
Cell: Ex. 6 Personal Privacy (PP)
Fax: 202/358-3948
linda.s.wennerberg@nasa.gov

From: Beck, Nancy [mailto:Beck.Nancy@epa.gov]
Sent: Wednesday, July 19, 2017 1:01 PM
To: Forsgren, Lee <Forsgren.Lee@epa.gov>
Cc: Wennerberg, Linda S. (HQ-LD020) <linda.s.wennerberg@nasa.gov>; Davis, Patrick <davis.patrick@epa.gov>
Subject: RE: Perchlorate

Linda has quite the story for you--- she's been working this issue since 2002 (the good old days...)!

Nancy B. Beck, Ph.D., DABT
Deputy Assistant Administrator, OCSPP
P: 202-564-1273
M: Ex. 6 Personal Privacy (PP)
beck.nancy@epa.gov

From: Forsgren, Lee
Sent: Wednesday, July 19, 2017 12:56 PM
To: Beck, Nancy <Beck.Nancy@epa.gov>

Cc: linda.s.wennerberg@nasa.gov; Davis, Patrick <davis.patrick@epa.gov>
Subject: Re: Perchlorate

Linda,

As former NASA official myself I would be happy talk/meet with you regarding perchlorate.

Regards,
Lee

Sent from my iPhone

On Jul 19, 2017, at 12:47 PM, Beck, Nancy <Beck.Nancy@epa.gov> wrote:

> Linda,
> Regarding your perchlorate concerns, I suggest you contact Lee Forsgren or Patrick Davis regarding concerns with the interagency process for the EPA review.
> I'm sure they would try to assist you.
>
> Regards,
> Nancy
> **********
> Nancy B. Beck, Ph.D., DABT
> Deputy Assistant Administrator
> Office of Chemical Safety and Pollution Prevention
> P: 202-564-1273
> M: Ex. 6 Personal Privacy (PP)
> beck.nancy@epa.gov

Message

From: Beck, Nancy [Beck.Nancy@epa.gov]
Sent: 4/10/2019 3:36:37 PM
To: Mejias, Melissa [mejias.melissa@epa.gov]
CC: Forsgren, Lee [Forsgren.Lee@epa.gov]; Jones, Lindsey [jones.lindsey@epa.gov]
Subject: RE: Perchlorate
Attachments: Perchlorate Proposed NPDWR Redline 4-5-19.2.docx

Melissa and Lee,

Ex. 5 Deliberative Process (DP)

Lindsay may have additional thoughts/more time to review.

Thanks again,
Nancy

Nancy B. Beck, Ph.D., DABT
Principal Deputy Assistant Administrator, OCSPP
P: 202-564-1273
beck.nancy@epa.gov

From: Mejias, Melissa
Sent: Tuesday, April 9, 2019 10:39 AM
To: Beck, Nancy <Beck.Nancy@epa.gov>
Cc: Forsgren, Lee <Forsgren.Lee@epa.gov>
Subject: Perchlorate

Message

From: Burneson, Eric [Burneson.Eric@epa.gov]
Sent: 7/11/2018 5:08:17 PM
To: Ex. 6 EOP (PP); Ex. 6 DOD (PP); Wennerberg, Linda S. (HQ-LD020) [linda.s.wennerberg@nasa.gov]; Seifert, Robert [Robert.Seifert@EM.Doe.Gov]; Grevatt, Peter [Grevatt.Peter@epa.gov]; Waqar, Tayyaba [tayyaba.waqar@sba.gov]; kevin.bromberg@sba.gov; Brenner, Sara A. EOP/OSTP [Ex. 6 EOP (PP)]; Schwab, Margo EOP/OMB [Ex. 6 EOP (PP)]; Laity, Jim A. EOP/OMB [Ex. 6 EOP (PP)]; Szabo, Aaron L. EOP/CEQ [Ex. 6 EOP (PP)]; Barringer, Jody M. EOP/OMB [Ex. 6 EOP (PP)]; Falk Curtin, Edna T. EOP/OMB [Ex. 6 EOP (PP)]; Gamache, Christopher D. EOP/OMB [Ex. 6 EOP (PP)]; Dorjets, Vlad EOP/OMB [Ex. 6 EOP (PP)]; Mclain, Jennifer [Mclain.Jennifer@epa.gov]; Fine, Leah R. EOP/OMB [Ex. 6 EOP (PP)]
Subject: RE: TWG - Perchlorate
Attachments: MCLG Approaches Vol1 Main ReportCLEAN V2 7-11-18.docx; Redline Version MCLG Approaches Report V2 7-11-18.docx

Jim:
Attached for the work group's information is the current draft of the MCLG Approaches document. I am providing both a clean and redline version of the document (that compares the current document to the peer reviewed draft). As we discussed, I will be describing the changes we are making to this document to respond to the peer review recommendations. I am providing this document so that the technical work group can see the specific revisions I will be describing in the meeting at 2:00.

Eric Burneson, P.E.
Director of Standards and Risk Management
Office of Ground Water and Drinking Water
U.S. Environmental Protection Agency
202 564 5250

From: Burneson, Eric
Sent: Monday, July 09, 2018 5:03 PM
To: 'Kim, Jim H. EOP/OMB' <Ex. 6 EOP (PP)>; Ex. 6 DOD (PP) Ex. 6 DOD (PP); Wennerberg, Linda S. (HQ-LD020) <linda.s.wennerberg@nasa.gov>; Seifert, Robert <Robert.Seifert@EM.Doe.Gov>; Grevatt, Peter <Grevatt.Peter@epa.gov>; Waqar, Tayyaba <tayyaba.waqar@sba.gov>; kevin.bromberg@sba.gov; Brenner, Sara A. EOP/OSTP <Ex. 6 EOP (PP)>; Schwab, Margo EOP/OMB <Ex. 6 EOP (PP)>; Laity, Jim A. EOP/OMB <Ex. 6 EOP (PP)>; Szabo, Aaron L. EOP/CEQ <Ex. 6 EOP (PP)>; Barringer, Jody M. EOP/OMB <Ex. 6 EOP (PP)>; Falk Curtin, Edna T. EOP/OMB <Ex. 6 EOP (PP)>; Gamache, Christopher D. EOP/OMB <Ex. 6 EOP (PP)>; Dorjets, Vlad EOP/OMB <Ex. 6 EOP (PP)>; Mclain, Jennifer <Mclain.Jennifer@epa.gov>; Fine, Leah R. EOP/OMB Ex. 6 EOP (PP)>
Subject: RE: TWG - Perchlorate

Jim:
Thank you for setting up this meeting. Please note that the external peer review was completed in March, 2018. The peer review report is attached and is also in the docket at https://www.regulations.gov/docket?D=EPA-HQ-OW-2016-0439. We look forward to speaking with the technical work group about this analysis and the steps EPA is taking to address peer review comments.

Eric Burneson, P.E.
Director of Standards and Risk Management
Office of Ground Water and Drinking Water
U.S. Environmental Protection Agency
202 564 5250

-----Original Appointment-----
From: Kim, Jim H. EOP/OMB [mailto Ex. 6 EOP (PP)
Sent: Monday, July 09, 2018 11:06 AM
To: Ex. 6 DOD (PP) Wennerberg, Linda S. (HQ-LD020); Seifert, Robert; Burneson, Eric; Grevatt, Peter; Waqar, Tayyaba; kevin.bromberg@sba.gov; Brenner, Sara A. EOP/OSTP; Schwab, Margo EOP/OMB; Laity, Jim A. EOP/OMB; Szabo, Aaron L. EOP/CEQ; Barringer, Jody M. EOP/OMB; Falk Curtin, Edna T. EOP/OMB; Gamache, Christopher D. EOP/OMB; Dorjets, Vlad EOP/OMB; Mclain, Jennifer; Fine, Leah R. EOP/OMB
Subject: TWG - Perchlorate
When: Wednesday, July 11, 2018 2:00 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Conference Call

Dear Technical Working Group:

I am scheduling this conference call so that EPA can update us on their actions on regulating perchlorate in water. The external peer review of the scientific documents was completed last fall, and we have not had a recent update on the status of this activity.

Call-in Number: Ex. 6 Personal Privacy (PP)
Participants: Ex. 6 Personal Privacy (PP)

Let me know if you have questions.

Jim

Message

From: Hernandez-Quinones, Samuel [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=4C46D56B82F143DF82F81D322BD109D7-HERNANDEZ-QUINONES, SAMUEL]
Sent: 6/15/2020 8:10:08 PM
To: Flaharty, Stephanie [Flaharty.Stephanie@epa.gov]
Subject: RE: EO12866: OMB Comments on Perchlorate Notice
Attachments: EO12866_SDWA NPDWR 2040-AF28 FRN Perchlorate Rule 20200615 v1.docx

Hi Steph,

Can you take a look at the attached file and let me know if there are any formatting changes that we still need to incorporate? I had taken your comments from a previous version of the document and I had made the necessary changes.

It looks like Eric would like us to make these changes quickly once we get the go ahead from OMB.

Thanks
Sam

==========
Samuel Hernández Quiñones, P.E.
Environmental Engineer
Office of Water
Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, DC 20460
202-564-1735

"USEPA Protecting Human Health and the Environment"

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Monday, June 15, 2020 2:48 PM
To: Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>; Flaharty, Stephanie <Flaharty.Stephanie@epa.gov>
Cc: Christ, Lisa <Christ.Lisa@epa.gov>
Subject: FW: EO12866: OMB Comments on Perchlorate Notice

Sam

Ex. 5 Deliberative Process (DP)

Thanks

From: Burneson, Eric
Sent: Monday, June 15, 2020 2:36 PM
To: Dorjets, Vlad EOP/OMB <**Ex. 6 Personal Privacy (PP)**
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Vlad:

Ex. 5 Deliberative Process (DP)

Thank you for your work to facilitate this review. Please let me know if you have any questions

Eric Burneson, P.E.
Director of Standards and Risk Management
Office of Ground Water and Drinking Water
U.S. Environmental Protection Agency
202 564 5250

From: Dorjets, Vlad EOP/OMB [Ex. 6 Personal Privacy (PP)]
Sent: Friday, June 12, 2020 11:14 AM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

From: Dorjets, Vlad EOP/OMB [Ex. 6 Personal Privacy (PP)]
Sent: Thursday, June 11, 2020 6:42 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: Re: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Sent from my iPhone

On Jun 11, 2020, at 6:23 PM, Burneson, Eric <Burneson.Eric@epa.gov> wrote:

Vlad:

Ex. 5 Deliberative Process (DP)

Eric Burneson, P.E.
Director of Standards and Risk Management
Office of Ground Water and Drinking Water
U.S. Environmental Protection Agency
202 564 5250

From: Dorjets, Vlad EOP/OMB **Ex. 6 Personal Privacy (PP)**
Sent: Wednesday, June 10, 2020 2:07 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Eric,

Ex. 5 Deliberative Process (DP)

Feel free to give me a call if you want to discuss.

Vlad

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Tuesday, June 9, 2020 5:41 PM
To: Dorjets, Vlad EOP/OMB <Ex. 6 Personal Privacy (PP)
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Vlad;
Attached please find EPA's edits and responses to the consolidated comments received from the Inter Agency Review. We have accepted the majority of recommended edits and have offered alternative language where appropriate.

Ex. 5 Deliberative Process (DP)

We can meet to discuss any questions you have regarding the attached document. Thank you for your coordination and your input on this important action.

Eric Burneson, P.E.
Director of Standards and Risk Management
Office of Ground Water and Drinking Water
U.S. Environmental Protection Agency
202 564 5250

From: Dorjets, Vlad EOP/OMB [**Ex. 6 Personal Privacy (PP)**
Sent: Friday, June 05, 2020 10:07 AM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Friday, June 5, 2020 9:15 AM
To: Dorjets, Vlad EOP/OMB < **Ex. 6 Personal Privacy (PP)**
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Vlad

Ex. 5 Deliberative Process (DP)

From: Dorjets, Vlad EOP/OMB [Ex. 6 Personal Privacy (PP)]
Sent: Friday, June 05, 2020 8:58 AM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Friday, June 5, 2020 8:33 AM
To: Dorjets, Vlad EOP/OMB <[Ex. 6 Personal Privacy (PP)]
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Vlad: We have combined the three comment documents into a single file and will prepare a passback with this combined file. Are you available after the 12866 meeting with AWWA this afternoon in case we have any questions about the comments?

From: Dorjets, Vlad EOP/OMB [Ex. 6 Personal Privacy (PP)]
Sent: Thursday, June 04, 2020 6:05 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

From: Dorjets, Vlad EOP/OMB
Sent: Thursday, June 4, 2020 5:05 PM
To: 'Burneson, Eric' <Burneson.Eric@epa.gov>

Cc: 'Parikh, Pooja' <Parikh.Pooja@epa.gov>; 'Christ, Lisa' <Christ.Lisa@epa.gov>; 'Johnson, Ann' <Johnson.Ann@epa.gov>; 'Wehling, Carrie' <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

From: Dorjets, Vlad EOP/OMB
Sent: Thursday, June 4, 2020 5:00 PM
To: 'Burneson, Eric' <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: EO12866: OMB Comments on Perchlorate Notice

Eric,

Ex. 5 Deliberative Process (DP)

Vlad

Evalenko, Sandy

Subject: FW: Draft letter to court; and check in re timing

From: Parikh, Pooja <Parikh.Pooja@epa.gov>
Sent: Tuesday, June 16, 2020 3:00 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Cc: Christ, Lisa <Christ.Lisa@epa.gov>; Flaharty, Stephanie <Flaharty.Stephanie@epa.gov>
Subject: RE: Draft letter to court; and check in re timing

Ex. 5 Deliberative Process (DP)

Pooja S. Parikh
Attorney- Advisor
U.S. Environmental Protection Agency
Office of General Counsel, Water Law Office
Phone: 202 564-0839
Email: parikh.pooja@epa.gov

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Monday, June 15, 2020 2:53 PM
To: Wehling, Carrie <Wehling.Carrie@epa.gov>; Parikh, Pooja <Parikh.Pooja@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Cc: Christ, Lisa <Christ.Lisa@epa.gov>; Flaharty, Stephanie <Flaharty.Stephanie@epa.gov>
Subject: RE: Draft letter to court; and check in re timing

Thanks all.
I am looping in Stephanie Flaharty who should be copied on concurrence when it is provided.

From: Wehling, Carrie
Sent: Monday, June 15, 2020 2:51 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>; Parikh, Pooja <Parikh.Pooja@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Cc: Christ, Lisa <Christ.Lisa@epa.gov>
Subject: RE: Draft letter to court; and check in re timing

Ex. 5 Deliberative Process (DP)

Caroline (Carrie) Wehling
Assistant General Counsel

Water Law Office
U.S. Environmental Protection Agency
Washington DC 20004
202-564-5492
wehling.carrie@epa.gov

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Monday, June 15, 2020 2:42 PM
To: Wehling, Carrie <Wehling.Carrie@epa.gov>; Parikh, Pooja <Parikh.Pooja@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Cc: Christ, Lisa <Christ.Lisa@epa.gov>
Subject: RE: Draft letter to court; and check in re timing

Ex. 5 Deliberative Process (DP)

From: Wehling, Carrie
Sent: Monday, June 15, 2020 12:40 PM
To: Parikh, Pooja <Parikh.Pooja@epa.gov>; Burneson, Eric <Burneson.Eric@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Cc: Christ, Lisa <Christ.Lisa@epa.gov>
Subject: RE: Draft letter to court; and check in re timing

Ex. 5 Deliberative Process (DP)

Caroline (Carrie) Wehling
Assistant General Counsel
Water Law Office
U.S. Environmental Protection Agency
Washington DC 20004
202-564-5492
wehling.carrie@epa.gov

From: Parikh, Pooja <Parikh.Pooja@epa.gov>
Sent: Monday, June 15, 2020 12:30 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Cc: Wehling, Carrie <Wehling.Carrie@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>
Subject: RE: Draft letter to court; and check in re timing

Ex. 5 Attorney Client (AC)

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Monday, June 15, 2020 12:18 PM
To: Parikh, Pooja <Parikh.Pooja@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Cc: Wehling, Carrie <Wehling.Carrie@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>
Subject: RE: Draft letter to court; and check in re timing

Ex. 5 Attorney Client (AC)

Eric

From: Parikh, Pooja
Sent: Monday, June 15, 2020 11:53 AM
To: Burneson, Eric <Burneson.Eric@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Cc: Wehling, Carrie <Wehling.Carrie@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>
Subject: RE: Draft letter to court; and check in re timing

Ex. 5 Attorney Work Product (AWP)

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Monday, June 15, 2020 10:58 AM
To: Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>; Parikh, Pooja <Parikh.Pooja@epa.gov>
Cc: Wehling, Carrie <Wehling.Carrie@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>
Subject: RE: Draft letter to court; and check in re timing

Regarding timing. We expect to have clearance from OMB today or tomorrow.

From: Hernandez-Quinones, Samuel
Sent: Monday, June 15, 2020 10:50 AM
To: Parikh, Pooja <Parikh.Pooja@epa.gov>
Cc: Wehling, Carrie <Wehling.Carrie@epa.gov>; Burneson, Eric <Burneson.Eric@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>
Subject: RE: Draft letter to court; and check in re timing

Hi Pooja,

We received approximately 1,500 comments.

Thanks
Sam
==========
Samuel Hernández Quiñones, P.E.
Environmental Engineer
Office of Water
Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, DC 20460
202-564-1735

"USEPA Protecting Human Health and the Environment"

From: Parikh, Pooja <Parikh.Pooja@epa.gov>
Sent: Monday, June 15, 2020 10:40 AM
To: Burneson, Eric <Burneson.Eric@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Hernandez-Quinones, Samuel

<Hernandez.Samuel@epa.gov>
Cc: Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: Draft letter to court; and check in re timing

Ex. 5 Attorney Work Product (AWP)

Pooja

Pooja S. Parikh
Attorney- Advisor
U.S. Environmental Protection Agency
Office of General Counsel, Water Law Office
Phone: 202 564-0839
Email: parikh.pooja@epa.gov

Message

From: Johnson, Ann [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=BF046C29B1604A0E9F712B671C4F3CE5-JOHNSON, ANN]
Sent: 6/16/2020 1:36:55 PM
To: Nickerson, William (Nickerson.William@epa.gov) [Nickerson.William@epa.gov]; Corrales, Mark (Corrales.Mark@epa.gov) [Corrales.Mark@epa.gov]
Subject: FW: EO12866: OMB Comments on Perchlorate Notice

FYI

From: Dorjets, Vlad EOP/OMB [Ex. 6 Personal Privacy (PP)]
Sent: Tuesday, June 16, 2020 9:22 AM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Eric,

Ex. 5 Deliberative Process (DP)

Vlad

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Monday, June 15, 2020 2:36 PM
To: Dorjets, Vlad EOP/OMB <[Ex. 6 Personal Privacy (PP)]
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Vlad:

Ex. 5 Deliberative Process (DP)

Thank you for your work to facilitate this review. Please let me know if you have any questions

Eric Burneson, P.E.
Director of Standards and Risk Management
Office of Ground Water and Drinking Water
U.S. Environmental Protection Agency
202 564 5250

From: Dorjets, Vlad EOP/OMB [Ex. 6 Personal Privacy (PP)]
Sent: Friday, June 12, 2020 11:14 AM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

From: Dorjets, Vlad EOP/OMB <Ex. 6 Personal Privacy (PP)>
Sent: Thursday, June 11, 2020 6:42 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: Re: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Sent from my iPhone

On Jun 11, 2020, at 6:23 PM, Burneson, Eric <Burneson.Eric@epa.gov> wrote:

Vlad:

Ex. 5 Deliberative Process (DP)

Eric Burneson, P.E.
Director of Standards and Risk Management
Office of Ground Water and Drinking Water
U.S. Environmental Protection Agency
202 564 5250

From: Dorjets, Vlad EOP/OMB [Ex. 6 Personal Privacy (PP)]
Sent: Wednesday, June 10, 2020 2:07 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Eric,

Ex. 5 Deliberative Process (DP)

Feel free to give me a call if you want to discuss.

Vlad

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Tuesday, June 9, 2020 5:41 PM
To: Dorjets, Vlad EOP/OMB <[Ex. 6 Personal Privacy (PP)]
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>; Hernandez-Quinones, Samuel <Hernandez.Samuel@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Vlad;
Attached please find EPA's edits and responses to the consolidated comments received from the Inter Agency Review. We have accepted the majority of recommended edits and have offered alternative language where appropriate.

Ex. 5 Deliberative Process (DP)

We can meet to discuss any questions you have regarding the attached document. Thank you for your coordination and your input on this important action.

Eric Burneson, P.E.
Director of Standards and Risk Management

Office of Ground Water and Drinking Water
U.S. Environmental Protection Agency
202 564 5250

From: Dorjets, Vlad EOP/OMB [redacted: Ex. 6 Personal Privacy (PP)]
Sent: Friday, June 05, 2020 10:07 AM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

[redacted: Ex. 5 Deliberative Process (DP)]

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Friday, June 5, 2020 9:15 AM
To: Dorjets, Vlad EOP/OMB [redacted: Ex. 6 Personal Privacy (PP)]
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Vlad

[redacted: Ex. 5 Deliberative Process (DP)]

From: Dorjets, Vlad EOP/OMB [redacted: Ex. 6 Personal Privacy (PP)]
Sent: Friday, June 05, 2020 8:58 AM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

[redacted: Ex. 5 Deliberative Process (DP)]

Ex. 5 Deliberative Process (DP)

From: Burneson, Eric <Burneson.Eric@epa.gov>
Sent: Friday, June 5, 2020 8:33 AM
To: Dorjets, Vlad EOP/OMB <Ex. 6 Personal Privacy (PP)
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Vlad: We have combined the three comment documents into a single file and will prepare a passback with this combined file. Are you available after the 12866 meeting with AWWA this afternoon in case we have any questions about the comments?

From: Dorjets, Vlad EOP/OMB [Ex. 6 Personal Privacy (PP)
Sent: Thursday, June 04, 2020 6:05 PM
To: Burneson, Eric <Burneson.Eric@epa.gov>
Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

From: Dorjets, Vlad EOP/OMB
Sent: Thursday, June 4, 2020 5:05 PM
To: 'Burneson, Eric' <Burneson.Eric@epa.gov>
Cc: 'Parikh, Pooja' <Parikh.Pooja@epa.gov>; 'Christ, Lisa' <Christ.Lisa@epa.gov>; 'Johnson, Ann' <Johnson.Ann@epa.gov>; 'Wehling, Carrie' <Wehling.Carrie@epa.gov>
Subject: RE: EO12866: OMB Comments on Perchlorate Notice

Ex. 5 Deliberative Process (DP)

From: Dorjets, Vlad EOP/OMB
Sent: Thursday, June 4, 2020 5:00 PM
To: 'Burneson, Eric' <Burneson.Eric@epa.gov>

Cc: Parikh, Pooja <Parikh.Pooja@epa.gov>; Christ, Lisa <Christ.Lisa@epa.gov>; Johnson, Ann <Johnson.Ann@epa.gov>; Wehling, Carrie <Wehling.Carrie@epa.gov>
Subject: EO12866: OMB Comments on Perchlorate Notice

Eric,

Ex. 5 Deliberative Process (DP)

Vlad

Appointment

From: Muellerleile, Caryn [Muellerleile.Caryn@epa.gov]
Sent: 7/10/2017 6:00:54 PM
To: Muellerleile, Caryn [Muellerleile.Caryn@epa.gov]; Hafez, Ahmed [Hafez.Ahmed@epa.gov]; Strong, Jamie [Strong.Jamie@epa.gov]; Mclain, Jennifer [Mclain.Jennifer@epa.gov]; Grevatt, Peter [Grevatt.Peter@epa.gov]; Burneson, Eric [Burneson.Eric@epa.gov]; Olson, Daniel [Olson.Daniel@epa.gov]; Christ, Lisa [Christ.Lisa@epa.gov]; Margo EOP/OMB [Ex. 6 Personal Privacy (PP)]v]; Vlad Dorjets [Ex. 6 Personal Privacy (PP)]
CC: Behl, Betsy [Behl.Betsy@epa.gov]; OP ADP Calendar [OP_ADP_Calendar@epa.gov]; Nurse, Leanne [Nurse.Leanne@epa.gov]; Johnson, Ann [Johnson.Ann@epa.gov]; Flowers, Lynn [Flowers.Lynn@epa.gov]; Schlosser, Paul [Schlosser.Paul@epa.gov]; Huff, Lisa [Huff.Lisa@epa.gov]; Forsgren, Lee [Forsgren.Lee@epa.gov]; [Ex. 6 Personal Privacy (PP)]; Barringer, Jody M. EOP/OMB [Ex. 6 Personal Privacy (PP)]; Abt, Eileen [Eileen.Abt@fda.hhs.gov]; Morozov, Viktor [Morozov.Viktor@epa.gov]; Bussard, David [Bussard.David@epa.gov]; Lavoie, Emma [Lavoie.Emma@epa.gov]; Moore, Beth [Beth.Moore@em.doe.gov]; Seale, Viktoria Z. EOP/CEQ [Ex. 6 Personal Privacy (PP)]; Bahadori, Tina [Bahadori.Tina@epa.gov]; [Ex. 6 DOD (PP)] [Ex. 6 DOD (PP)]; Kluever, April [April.Kluever@fda.hhs.gov]; Adamo, Emily (INTERN [Emily.Adamo@em.doe.gov]; [Ex. 6 DOD (PP)] Miller, Gregory [Miller.Gregory@epa.gov]; kevin.bromberg@sba.gov; Wirtz, Mark S [Mark.Wirtz@fda.hhs.gov]; Gavelek, Alexandra [Alexandra.Gavelek@fda.hhs.gov]; Clark, Steve [Steve.Clark@hq.doe.gov]; Kapraun, Dustin [Kapraun.Dustin@epa.gov]; Wennerberg, Linda S. (HQ-LD020) [linda.s.wennerberg@nasa.gov]; Lumen, Annie [Annie.Lumen@fda.hhs.gov]; [Ex. 6 DOD (PP)] [Ex. 6 DOD (PP)] Dinovi, Michael J [Michael.Dinovi@fda.hhs.gov]; Seifert, Robert [Robert.Seifert@EM.Doe.Gov]; Suzanne_Fitzpatrick [Suzanne.Fitzpatrick@fda.hhs.gov]; Evalenko, Sandy [Evalenko.Sandy@epa.gov]; Nasir, Iqra [nasir.iqra@epa.gov]; Smegal, Deborah [Deborah.Smegal@fda.hhs.gov]

Subject: FW: Interagency Perchlorate Peer Review Briefing with EPA (rescheduled)
Location: teleconference [Ex. 6 Personal Privacy (PP)] / access code [Ex. 6 Personal Privacy (PP)]

Start: 7/18/2017 6:00:00 PM
End: 7/18/2017 7:00:00 PM
Show Time As: Busy

-----Original Appointment-----
From: Muellerleile, Caryn [mailto:Muellerleile.Caryn@epa.gov]
Sent: Monday, July 10, 2017 2:01 PM
To: Muellerleile, Caryn; Schwab, Margo EOP/OMB; [Ex. 6 DOD (PP)] Robert.Seifert@EM.Doe.Gov; Letitia.O'Conor@em.doe.gov; Adamo, Emily (INTERN; linda.s.wennerberg@nasa.gov; tayyaba.waqar@sba.gov; [Ex. 6 DOD (PP)] Gareth.Buckland@em.doe.gov; Michael.Dinovi@fda.hhs.gov; Annie.Lumen@fda.hhs.gov; Suzanne.Fitzpatrick@fda.hhs.gov; Abt, Eileen; Kluever, April; Jeffrey.Fisher@fda.hhs.gov; Clark, Steve; Moore, Beth; [Ex. 6 DOD (PP)]; Jensen, Sarah; Grossman, Andrea L. EOP/OMB; Lee, Jennifer M. EOP/OSTP; Neumayr, Mary B. EOP/CEQ; Gamache, Christopher D. EOP/OMB; Falk Curtin, Edna T. EOP/OMB; Barringer, Jody M. EOP/OMB; kevin.bromberg@sba.gov; Hafez, Ahmed; Strong, Jamie; Mclain, Jennifer; Grevatt, Peter; Burneson, Eric; Olson, Daniel; Christ, Lisa; Dorjets, Vlad EOP/OMB
Cc: Behl, Betsy; OP ADP Calendar; Nurse, Leanne; Johnson, Ann; Flowers, Lynn; Schlosser, Paul; Huff, Lisa; Forsgren, Lee; Kim, Jim H. EOP/OMB; Morozov, Viktor; Bussard, David; Lavoie, Emma; [Ex. 6 DOD (PP)] [Ex. 6 DOD (PP)]; Seale, Viktoria Z. EOP/CEQ; Bahadori, Tina; [Ex. 6 DOD (PP)] Gregory; Wirtz, Mark S; Gavelek, Alexandra; Buckland, Gareth
Subject: FW: Interagency Perchlorate Peer Review Briefing with EPA (rescheduled)
When: Tuesday, July 18, 2017 2:00 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: teleconference [Ex. 6 Personal Privacy (PP)] / access code [Ex. 6 Personal Privacy (PP)]
-----Original Appointment-----
From: Muellerleile, Caryn [mailto:Muellerleile.Caryn@epa.gov]

Sent: Monday, July 10, 2017 2:01 PM
To: Muellerleile, Caryn; Hafez, Ahmed; Strong, Jamie; Mclain, Jennifer; Grevatt, Peter; Burneson, Eric; Olson, Daniel; Christ, Lisa; Schwab, Margo EOP/OMB; Dorjets, Vlad EOP/OMB
Cc: Behl, Betsy; OP ADP Calendar; Nurse, Leanne; Johnson, Ann; Flowers, Lynn; Schlosser, Paul; Huff, Lisa; Forsgren, Lee; Kim, Jim H. EOP/OMB; Barringer, Jody M. EOP/OMB; Abt, Eileen; Morozov, Viktor; Bussard, David; Lavoie, Emma; Moore, Beth; Ex. 6 DOD (PP); Ex. 6 DOD (PP); Seale, Viktoria Z. EOP/CEQ; Bahadori, Tina; Ex. 6 DOD (PP); Ex. 6 DOD (PP) Kluever, April; Adamo, Emily (INTERN; Ex. 6 DOD (PP); Ex. 6 DOD (PP); Miller, Gregory; kevin.bromberg@sba.gov; Wirtz, Mark S; Gavelek, Alexandra; Buckland, Gareth; Clark, Steve; Neumayr, Mary B. EOP/CEQ
Subject: Interagency Perchlorate Peer Review Briefing with EPA (rescheduled)
When: Tuesday, July 18, 2017 2:00 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: teleconference Ex. 6 Personal Privacy (PP) / access code Ex. 6 Personal Privacy (PP)
Draft agenda:
- Perchlorate BBDR Model Peer Review Outcome
- Reviewers response to charge
- EPA's actions on peer review recommendations
- Overview of Revisions to the BBDR Model
- MCLG Approaches
- Next Steps

EPA's recent model and peer review materials:
>https://www.regulations.gov/docket?D=EPA-HQ-OW-2016-0438<
>https://www.regulations.gov/docket?D=EPA-HQ-OW-2016-0439<
Revised briefing materials to follow.

Message

From: Kluever, April N. EOP/OMB [Ex. 6 Personal Privacy (PP)]
Sent: 7/27/2020 6:01:30 PM
To: Behl, Betsy [Behl.Betsy@epa.gov]; beth.moore@em.doe.gov; christopher.weis@nih.gov; David.Goldman@fda.hhs.gov; david.knaebel@usda.gov; debbie.rosano@hq.doe.gov; denise.r.thaller@nasa.gov; Deyo, Brendan G. (HQ-LD020) (brendan.g.deyo@nasa.gov) [brendan.g.deyo@nasa.gov]; Domesle, Alexander - FSIS (alexander.domesle@usda.gov) [alexander.domesle@usda.gov]; Drinkard, Andrea [Drinkard.Andrea@epa.gov]; emilio.esteban@usda.gov; Gamache, Christopher D. EOP/OMB [Ex. 6 Personal Privacy (PP)]; Gillespie, Andrew [Gillespie.Andrew@epa.gov]; Hass, Jennifer [jennifer.hass@hq.dhs.gov]; [Ex. 6 DOD (PP)] [Ex. 6 DOD (PP)](amy.keith@nasa.gov) [amy.keith@nasa.gov]; khatlelid@cpsc.gov; Kramer, Jessica L. [kramer.jessical@epa.gov]; Friedersdorf, Lisa E. EOP/OSTP [Ex. 6 Personal Privacy (PP)]; Lisa.quiveors@hq.dhs.gov; mark.j.schoppet@nasa.gov; McCoy, Jeff [jefmccoy@usgs.gov]; McLain, Jennifer L. [McLain.Jennifer@epa.gov]; Garcia Reyero Vinas, Natalia EOP/OMB [Ex. 6 Personal Privacy (PP)]; Otey, Mitchell (FAA) (mitchell.otey@faa.gov) [mitchell.otey@faa.gov]; [Ex. 6 DOD (PP)]; Paul.South@fda.hhs.gov; pjb7@cdc.gov; Raffaele, Kathleen [raffaele.kathleen@epa.gov]; Reh, Chris (ATSDR/OA/OD) (cer2@cdc.gov) [cer2@cdc.gov]; Schwab, Margo EOP/OMB [Ex. 6 Personal Privacy (PP)]; tayyaba.waqar@sba.gov; Timothy Appleman [timothy.d.appleman@nasa.gov]; Tonnacliff, Marc (FAA) [Marc.Tonnacliff@faa.gov]; wolfe@niehs.nih.gov; Zevitas, Christopher (Volpe) (Chris.Zevitas@dot.gov) [Chris.Zevitas@dot.gov]
Subject: FW: Thyroid report
Attachments: ECPA005_4111_001 RSA Thyroid State of Science Review Final 12082019.pdf

Dear TWG,

Please see attached the final version of the RSA thyroid report for your files. Last week we discussed the report as an important reference for the PFBS evaluation, but only had draft copies. EPA obtained the final version.

Thanks!

April

April Neal Kluever, Ph.D., D.A.B.T.
Senior Toxicologist
Statistical and Science Policy Branch
Office of Information and Regulatory Affairs
Office of Management and Budget
Executive Office of the President

Cell: [Ex. 6 Personal Privacy (PP)]
Office: 202-395-6906

The content of this communication is deliberative.

From: Lambert, Jason <Lambert.Jason@epa.gov>
Sent: Friday, July 24, 2020 8:33 AM
To: Kluever, April N. EOP/OMB <[Ex. 6 Personal Privacy (PP)]>
Cc: Jones, Samantha <Jones.Samantha@epa.gov>; Owens, Beth <Owens.Beth@epa.gov>; Gillespie, Andrew <Gillespie.Andrew@epa.gov>
Subject: Thyroid report

Good morning April,
I just received the 'final' copy of the RSA thyroid report directly from the folks at RSA. We will swap in this copy for the PFBS assessment. Please feel free to share with the OMB-TWG membership as appropriate; I know Jim will likely want this copy. Have a great weekend!

Jason C. Lambert, PhD, DABT
Senior Science Advisor
Center for Computational Toxicology and Exposure
U.S. Environmental Protection Agency
26 West Martin Luther King Dr.
Cincinnati, OH 45268
(513)-569-7078
lambert.jason@epa.gov